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PARTY AKTIV IN ARMENIAN SSR GOSPLAN DISCUSSES FUTURE DEVELOPMENT

Yerevan KOMMUNIST in Russian 10 Oct 79 p 2

[Article by V. Danilov and A. Shkulev: "On to a New Level of Management--A Matter of Paramount Importance, Meeting of Party-Management Aktiv of the Armenian Gosplan"]

> [Text] The workers of Armenia reacted keenly to the decree of the Central Committee of the CPSU concerning further improvement of the management mechanism and tasks for Party and management bodies, as well as the decree of the CC CPSU and USSR Council of Ministers, "Improvement of planning and intensification of influence of the management mechanism on increasing effectiveness of production and improving quality of work." These important documents are being submitted to in-depth study, and they are discussed seriously at meetings of the Party-management aktiv, communists by worker groups of associations, enterprises and organizations. There was a meeting of the Party-management aktiv of the Armenian Gosplan, which discussed some important tasks in the light of the new requirements referable to planning and management.

In a speech at the first session of the tenth convocation of the USSR Supreme Soviet, L. I. Brezhnev remarked: "This stage of mature socialism, the scientific and technological revolution are making increasing demands of the mechanism of economic management, implying continued refinement thereof and require much purposeful organizational work."

The main routes for further improvement of the management system were defined by the 25th Party Congress, subsequent plenums of the CC CPSU and speeches of comrade L. I. Brezhnev. The decree of the CC CPSU and USSR Council of Ministers, "Improvement of planning and intensification of the influence of the management system on effectiveness of production and quality of work," is an important step toward this end.

How can this program of the Party and government be successfully implemented? What are the pressing tasks confronting workers in planning agencies?

M. R. Gukasyan, first deputy chairman of the Armenian Gosplan, stated: "There is much to be done by the Gosplan together with the republic's ministries and agencies. First of all, our attention must be directed toward upgrading the draft plans for the 11th Five-Year Plan and the period up to 1990. It is imperative to give much thought to socioeconomic problems, to find and include in the plans the optimum means of solving them."

The workers in the Gosplan system and its scientific research organizations, rayplan [rayon planning] and gorplan [municipal planning commissions] must make an in-depth and thorough study of all points in the decree, render comprehensive methodological assistance to ministries and agencies in order to change enterprises and associations over to the new system of planning and incentives on schedule; they must organize work better and attain a more business-like and operational attitude in decision making.

In the light of the decree, there are many tasks also for organizations subordinated to the republic's Gosplan. They must provide for a set of measures to raise drastically the level of organization of work and economic effectiveness with regard to the problems they work on. It is imperative to include several problems that ensue directly from this decree in the plans for scientific research.

A. V. Ter-Israyelyan, head of the department of the building industry and contractor work, devoted his speech to the question of augmenting the effectiveness of capital investments. As we know, construction is a branch of the national economy that is lagging. It is retarding the growth of industrial production and causing delay in solving a number of social problems. The decree of the CC CPSU and USSR Council of Ministers outlines a system of measures to drastically improve the situation in the area of construction. These measures are aimed at upgrading all phases of construction, from the designing stage to operation of all elements of the management system, from planning and material incentives to organizational forms of construction management.

Refinement of the structure of the management system, reduction in number of levels, parallelism and duplication in the work of different departments are important to the increase in effectiveness of capital construction.

At the present time, most of the construction and installation work in Yerevan is performed by the following trusts: Yerkhimstroy, Yerpromstroy, Nos 1, 2, 3, Otdelstroy and Spetsmekhanizatsii, as well as a house-building combine. The volume of work done by general contract corresponds to over 140 million rubles. The above-mentioned trusts are comprised of 36 primary organizations. The share of each constitutes an average of about 4 million rubles, whereas in most major cities of our country there are organizations that perform twice as much work. The specialization principle is not followed either. Of the total amount of construction and installation work, industrial construction constitutes 34%, housing 41%, public buildings [cultural, domestic services, etc.] 19%, communal and others 6%. All of the trusts in Yerevan do all types of construction work in different proportions.

The decree of the CC CPSU and USSR Council of Ministers provides for enlargement of construction organizations, further specialization and concentration of production and a change, in 1979-1981, to a two-three-element management system.

V. G. Oganesyan, head of the coordinating division of the national economy plan, stated: "Improvement of plan indices and criteria for rating the results of performance, by means of which worker groups, all administrative and planning bodies will be better guided toward improving the end national economic results, toward augmenting the return from labor, technology, conservative and wise use of everything the national economy has occupy an important place in the system of measures to improve the planning of industrial production."

There are plans for ministries, associations and enterprises to approve of assignments pertaining to production of the main types of products in physical terms; they will be defined in economic agreements between consumers and suppliers. The extent of fulfillment of mutual obligations pertaining to delivery of products to consumers in a specific nomenclature (assortment) will become the main criterion for rating the results of administrative activity of industrial enterprises. There will be a basically new solution to the problem of planning the overall volume of production in terms of cost. There will be a gradual transition to broad use of the index of net (standard) production.

The new indicators are beginning to be used. For them to become a routine practice, we should assimilate them faster, so that they could be used extensively in rating the administrative performance of enterprises, records, accounting and socialist competition.

Kh. K. Ter-Mkhitaryan, head of the department of machine building, stressed the importance of a correct combination in this republic of sectorial and territorial planning, augmenting the role of the sectorial departments of the Gosplan in settling questions of location of industrial enterprises.

The meeting of the Party-management aktiv of the Armenian Gosplan unanimously approved, accepted as a steady guide and agreed to implement the decree of the CC CPSU and USSR Council of Ministers concerning improvement of the management system; it outlined several complex measures called upon to upgrade planning and have it conform with the demands of the present stage of development of productive forces.

The meeting deemed it necessary to conduct special classes and group conferences for the study of the decree and new tasks ensuing from it among the Party organizations and groups of the Gosplan and subordinate organizations.

It was recommended to the management of the Gosplan to implement clearcut coordination and correlation between all sections of the Gosplan and subordinate scientific organizations, as well as sectorial institutes and institutes of this republic's Academy of Sciences in preparing 5-year and long-range plans. It was also suggested that the question be considered of the desirability of establishing a scientific-methodological and coordination council under the Gosplan to develop and implement measures and coordinate work pertaining to implementation of the decree of the Party and government. The scientific organizations must include in their classified plans work on problems that ensue directly from the decree.

The practical implementation of the measures outlined by the Gosplan aktiv pertaining to improvement of the management system will aid in advancing the economy, improving the effectiveness and quality of work.

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CSO: 1820

A NEW STAGE OF SOCIALIST PLANNING

Moscow KRASNAYA ZVEZDA in Russian 18 Oct 79 p 2

[Article by G. Vlasenkov, candidate of economic sciences: "A New Stage of Socialist Planning, Talk by an Economist"]

[Text] At the present stage of development of Soviet society, there has been an immeasurable increase in scale of production. Economic ties have become complex and ramified. The scientific and technological revolution is making profound changes in the economy. And it is quite logical that, under these conditions, continued refinement of control of the nation's economy has acquired special importance.

On the basis of the decisions of the 25th Party Congress, in order to conform the methods of control and planning with the current level of development of productive forces, the Central Committee of the CPSU adopted a decree in July of this year "On continued upgrading of the economic mechanism and tasks of Party and State agencies," after which the decree of the CC CPSU and USSR Council of Ministers was published "On improved planning and intensification of the effect of the management [or economic] mechanism on increasing the effectiveness of production and improving the quality of work."

These documents outlined a complex solution to problems of controlling the national economy. In the first place, they defined concrete measures to upgrade planning work in the national economy; in the second place, they outlined the routes for improving the effectiveness of capital investments and, in the third place, they strengthened the role of autonomous financing, economic leverage and incentives.

Among the major steps planned, refinement of planned management of the economy is in first place.

As we know, planning is the core of socialist economics, one of the basic advantages of a Soviet social and State regime. Our country was the first to take the route of planned management of the economy. Dozens of other countries learned and are presently learning this complex art from the Soviet Union. But we too are now faced with the task of refining planning work, to have it conform with the requirements of the present stage, a stage of developed socialism.

In accordance with the instructions of the 25th Party Congress, the decree of the CC CPSU and USSR Council of Ministers has clearly designated the most important directions to follow in order to upgrade all planning work. We refer to the choice of the most effective means of reaching high end results in the area of the national economy, wise combination of industrial [sectorial] and territorial development, long-term and current plans, refinement of inter-sectorial and intrasectorial proportions, and providing for balanced growth of the economy.

The Party and government aim all planning work toward complex resolution of economic and social problems, concentration of manpower and resources on execution of the most important national programs, faster implementation of scientific and technical discoveries and projects, wise use of industrial funds, material, labor and financial resources, intensification of economy and elimination of losses in the national economy.

The procedure for preparing long-term and current plans for economic and social development, which increases their effectiveness significantly, has been spelled out by decree of the CC CPSU and USSR Council of Ministers.

Under modern conditions, the horizons of planning are widening. The main directions of economic and social development of our country will be elaborated systematically over a 10-year period (in 5-year stages). Every 5 years, the necessary emendations will be made in them, and they will be prepared again for the next 5 years. It is necessary to make long-term plans for development of the national economy because of the scope of the economic and social programs being implemented at the present time.

But, in our times, there is a particular increase in the role of 5-year planning as the main form of management of economic and social development of the country.

As noted in the decree of the CC CPSU and USSR Council of Ministers, special-goal complex programs pertaining to the most important directions and regions will be approved now, before the start of the next five-year plan. Of these programs, the ones to be worked on in the immediate future first of all are those pertaining to economy of fuel and metal, construction of the BAM [Baykal-Amur Mainline Railroad] and development of industry in regions where this railroad passes, reduction of manual labor, increased production of new consumer goods.

The basic distinction of the present stage of economic development of our country is that we are dealing with improvement of planning and management at all levels of management, from enterprises to the entire national economy, as well as new steps on the way toward further democratization of planning. It has been determined that annual plans are prepared starting from the bottom, i.e., industrial associations (enterprises) and organizations. As they deploy socialist competition and use the internal reserves, the work groups take on counterplans, which are coordinated with the material resources and included in the annual program.

The former principle of "starting from prior achievements" in undertaking assignments will be replaced by more precise economic and engineering estimates.

The decree of the CC CPSU and USSR Council of Ministers defined a new system of planned indices. What is the substance of this system? The work of an association (enterprise) will not be rated on the basis of peak performance, but by the specific contribution of the group: growth of net production, fulfillment of consumer orders, increase in production of goods of the highest quality. This aids in improving the effectiveness of production and quality of work, as well as better use of fixed capital.

The task has been set of rating fulfillment of five-year plans on all levels of planning on the basis of a running total, and that of annual plans using a running total from the beginning of the year. This increases the interest and responsibility of enterprises, associations and ministries for fulfilling the assignments for each year and the five-year plan as a whole.

The decree of the CC CPSU and USSR Council of Ministers implies that the advances in science and technology will be taken into comprehensive consideration in the plans for economic and social development.

At the present time, it is planned to systematically prepare a complex program of scientific and technological progress over a period of 20 years, with addition of the necessary emendations every 5 years. This would make it possible to better resolve the most important problem at the present stage of development of the material and technical base of communism: organic tie-in of the achievements of the scientific and technological revolution with the advantages of a fully developed socialist society.

Planning and construction of new enterprises, expansion and reconstruction of existing ones will be done on the basis of highly effective technology and with the use of the latest equipment so that the manufactured goods would be on a par, with regard to engineering sophistication and quality, with the best domestic and foreign items or excell them.

The engineering [technical] sophistication of produced machinery and equipment must be evaluated this year and in 1980. The task has been formulated of developing and implementing measures to upgrade the engineering and economic indices of items that are being produced and newly introduced, and production of obsolete items must be stopped.

The Party and government have outlined effective measures to put on stream more rapidly the production capacities and projects, and to augment the effectiveness of capital investments.

At the present time, we are building more than any other country in the world. In only 3 years of the current Five-Year Plan, over 700 major industrial enterprises have been constructed. A large scale program is being implemented for construction of housing, schools, hospitals and other buildings used for recreational, entertainment, etc., purposes.

However, there are still some serious flaws in capital construction. The erection of many projects and enterprises does not meet the established standards and plans.

The CC CPSU and USSR Council of Ministers have formulated the goal of bringing the unfinished construction projects up to the established norms.

Starting with the 11th Five-Year Plan, the USSR ministries, agencies and councils of ministers of Union republics will approve a stable Five-Year Plan for capital investments that will be balanced with all forms of necessary resources, as well as capabilities of construction and organizations.

The approach to planning capital investments is changing. What is the substance of the new approach? The main element is to provide organic unity in planning existing production and new construction. For these purposes, in drafts of five-year plans the allocation of capital investments for development of sectors of physical production will be made on the basis of the planned increment in production. This aids in making better use of the existing production potential. The decree stipulates that the funds for construction of new enterprises and expansion of existing ones will be allocated only if the need for a given type of product cannot be met by existing enterprises, with due consideration of remodeling thereof.

The fact that the system of indices of planning capital investments and rating the performance of building organizations is changing is also quite important. Now planning and rating of performance thereof will be made on the basis of putting production capacities and projects on stream, and commodity producing construction, rather than according to overall volume of work.

The highest goal of the Party's economic policy under developed socialism is to consistently raise the material and cultural standard of living of the people. For this reason, the decree of the CC CPSU and USSR Council of Ministers calls for implementation of a system of measures directed toward further subordination of the work of the entire economic mechanism, all levels of social production to the solution of the main socioeconomic problems defined in the CPSU Program and Party congresses. At the present time, the State plans will include summary sections for the entire set of measures in the area of social development, on all levels of management.

The Soviet people view the measures pertaining to improved planning as another manifestation of the concern of the Communist Party for their welfare. Refinement of management and planning serves as a reliable lever in upgrading the effectiveness of national production and quality of work, and it is instrumental in the continued success of building of communism.

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DEVELOPING THE PROFIT DISTRIBUTION SYSTEM IN INDUSTRY

Moscow FINANSY SSSR in Russian No 10, 1979 pp 27-32

[Article by A. I. Danilenko, senior staff scientist of the Economics Institute of the Ukrainian Academy of Sciences]

[Text] The system of profit distribution and of the relations which enterprises (associations) have with the budget is of greatest importance in improving cost-accounting (khozraschet) relations and in developing the principles of the self-financing of industry. On the one hand this system is expected to promote the development of cost-accounting relations and economic motivation in the industry, while on the other it should provide centralized regulation of the movement of a substantial portion of financial resources in accordance with the country's planned needs. The system of profit distribution helps to combine the interests of the state, of collectives and of individual workers and to promote the exercise of cost-accounting rights at all levels of the industry's management. The system in effect at present, as we know, assumes that enterprises (associations) will use the industry's own resources, including profit, that a portion of profit will be collected into the budget at fixed rates, and also that there will be a balancing element such as undistributed profit (svobodnyy ostatok pribyli).

When the present system of production planning and incentives was being developed, it was assumed that the bulk of profit would go into the budget on a priority basis in the form of the charge on capital and fixed payments, while only a negligible portion would be taken in the form of undistributed profit. The principal incentive function--raising the efficiency of utilization of fixed and working capital--was placed on the capital charge.

This procedure, which was adopted, makes it possible to regulate responsively the relations which production associations and enterprises have with the budget and to take into account the changes occurring (relative to the plan) in the volume of production, price adjustments, and other factors, and also to ensure that enterprises preserve their own working capital and that most of them maintain liquidity. But over the many years that the present system of profit distribution has been in force, its defects, which lie primarily in the kind of impact it has on production, have become increasingly obvious. Specifically, the charge on capital has not played its anticipated role as an incentive. An analysis based on the material of the union-republic industrial sector of Ukrainian SSR over the last 7 years showed that the indicators of the output-capital ratio and the turnover of working capital depended little on the charge on capital. Nor is this charge acting as an incentive (restraint) on the volume of capital investments.

The charge on capital is capable of serving as an incentive under present conditions by virtue of the following two interrelated factors: a rise in the relative share of the charge on capital in distributed profit and a closer connection of deviations of the total charge from the plan with the economic interests of production collectives.

In practice, unfortunately, these factors operated in different directions in the years of the 9th and 10th 5-year plans. Whereas the share of the charge on capital in profit increased steadily, though negligibly (as a consequence of the dropping level of profitability in production industries), the linkage of the charge on capital with economic incentive funds was virtually lost because of changes in the system for building up those funds. This occurred when the planning of the level of calculated profitability was discontinued in 1972 and formation of the material incentive fund was made dependent on attainment of the planned level, rather than on growth rates, of numerous fund-regulating indicators, instead of the two indicators previously in effect. The situation was compounded still more in the Ninth Five-Year Plan, when in certain industries the level of profitability was replaced as an indicator by reduction of production cost. For all practical purposes the charge on capital was transformed into a passive payment, since a change in its size could affect the size of incentive funds only if the profit plan were substantially underfulfilled, so that the profit remaining after payment of proportional payments (normativnyye platezhi) is not sufficient to build up funds in the necessary amount. In other words from the standpoint of their impact on production changes in the system of forming economic incentive funds have put proportional payments on a par with undistributed profit, which in a number of industries is the principal payment into the budget. For instance, in the Ukrainian Ministry of Light Industry in 1977 it amounted to 63.4 percent of the total profit distributed and 82.7 percent of payments into the budget. This is considerably more than necessary to performance of its balancing function.

The fact that the stimulative effect of the system of profit distribution is basically confined at the level of the enterprise (production association) should also be taken as a defect. At the level of the industrial association and ministry of the industry it is a rather passive factor, one which detracts from their participation in cost-accounting relations.

The insufficient stimulative effect of proportional payments and of the entire system of profit distribution on raising production efficiency provided the impetus for an energetic search for ways of improving it. In recent years there has been a vigorous discussion in the economics literature of the following three directions for invigorating the stimulative effect of the system of profit distribution on the growth of production efficiency: collection of payments into the budget in the form of a tax on profit;* profit distribution on the basis of shares after the pattern of USSR Minpribor [Ministry of Instrumentmaking, Automation Equipment and Control Systems], with the "share" being broken down to the level of enterprises, and improvement of the present system of profit distribution.

For a long time the tax method has in fact been used in relations with our country's cooperative sector, and it is also widespread in a number of CEMA countries. If we ignore the form of ownership and regard it only as a method of exerting an impact on the economy, then we must admit that it is the most effective of these three instruments for exerting an impact on the interests of the subject of taxation, since the entire portion of profit remaining after payment of the tax is used at the discretion of the collective to cover economic needs, including incentives for its workers. But if the tax method became widespread in relations between the enterprise and the state, within the limits of public ownership of the means of production, this would inevitably tend to weaken centralized regulation of financial resources and for certain industries and enterprises would disrupt the balance between financial resources on the one hand and physical and labor resources on the other.

A certain imbalance has already occurred in economic practice. At a number of enterprises converted to the new conditions of planning sizable amounts have built up in the production development fund which could not be used punctually and efficiently because of the lack of the physical equivalent of the financial resources (equipment, metal, available capacity of construction contractors, etc.). This indeed was one of the reasons why the independent planning of noncentralized capital investments was discontinued in 1974, and they were included in the plan of unified state capital investments.

Expansion of wholesale trade of the means of production can hardly serve as an alternative to this solution, since the scarcity (and consequently the allocations) of a number of physical resources will apparently persist in the near future as well. Moreover, the problem of labor resources and differentiation of enterprises with respect to level of income and with respect to their available financial resources and payments from incentive funds, which compounds the manpower supply problem for some of them, is becoming increasingly acute in the national economy.

When enterprises make payments into the budget in the form of a profit tax, this inevitably results in a considerable differentiation of available financial resources and enterprises regardless of whether a progressive tax or fixed rate is applied. The experience of Hungary and Czechoslovakia demonstrates that establishment of a uniform rate of deductions into the budget without taking into account the level of profitability of enterprises has an adverse effect on the entire process of national economic and financial planning and figures as a potential source of disruption of commodity-money relations.* The adverse consequences for the economy of applying long-term averaged rates have compelled a number of countries to renounce this form of relations between enterprises and the budget. Specifically, the GDR and Bulgaria went back to deductions from profit that take into account the level of enterprises' income and planned costs relative to profit.**

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* See Zaleskis, T., "On Profit Distribution at the Level of the Primary Entity," VOPROSY EKONOMIKI, No 1, 1977, p 64.

The method of profit distribution by shares has certain advantages over tax payments: it has been applied with a fair amount of success in the USSR Minpribor and has undergone development in a number of other industries (USSR Mintyazhmash [Ministry of Heavy and Transport Machinebuilding] and Mintraktorosel'khozmash [Ministry of Tractor and Agricultural Machinebuilding]). It is a fundamental feature of this method that the sum total of the industry's planned expenditures is the point of departure in setting the size of payments. The "share" of the budget consists of the sum of the charge on capital and undistributed profit remaining after the industry's "share" is formed.

The method of shares has the following principal advantages over the present system:

i. the budget is guaranteed that payments will be made from the budget at least equal to the amount envisaged in the plan;

ii. when counterassignments are adopted in response to the plan, and when the plan is overfulfilled (up to 2 percent),*** the additional profit obtained remains in the proportion of the industry's share at the disposition of the ministry and is used for reequipping enterprises and associations;

iii. a basis is provided for development of cost-accounting relations in the industry as a whole, which helps to raise production efficiency.

But there are also shortcomings inherent in the method of sharing, the main ones coming down to the following. First, it is difficult to extend it to the level of the enterprise. Moreover, as shown by Yugoslavia's experience, the use of such a method at the level of the enterprise involves abolishing command (direktivnoye) planning, a weakened role of the state in managing the process of socialist reproduction, and excessive enterprise of economic entities in disposing of the profit that remains after accounts have been settled with the budget. In certain CEMA member countries, in Hungary, for example, they resort to operational state regulation,* taking into account that "indirect methods are not a sufficient means of ensuring conformity to plan."

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* FINANSY SSSR, No 10, 1978, p 90.

** Ibid.

*** If the plan is overfulfilled by more than 2 percent the industry's "share" diminishes above that level.

Second, the method of sharing cannot be used in industries with a high share of enterprises which are not fulfilling the profit plan, since this system makes no provision for adequate financial reserves. For example, it is difficult to apply the method of sharing in the Ukrainian Ministry of Food Industry, where the profit plan in 1976 was fulfilled at a level of only 39.4 percent, and in 1977 at 43.9 percent, and where actual profit fell 541.5 million and 483.1 million rubles short of the respective planning targets. In this respect the experience of the USSR Minpribor, as an industry in which stable fulfillment of plans for production, sales and profit by practically all enterprises is assured, is not indicative.

Third, because of the systematic revision and adjustment of annual plans the economy's share in profit changes, and as a result it ceases to be a long-term rate and practically loses the function of an economic incentive. For instance, in USSR Minpribor the rate to cover the planned expenditures of the ministry (the economy's share) was set at 47.8 percent for 1972 in the 5-year plan, while the rate after revision (to take into account changes in the figures of national economic and financial plans) was 49.1 percent; the respective figures were 44.6 and 62.7 percent in 1973, 37.8 and 52.6 percent in 1974, and 32.6 and 54.6 percent in 1975.** In other words, here we see a violation of one of the main principles of the method of sharing--reduction of the industry's "share" in the total amount of balance-sheet profit.

A great number of changes are made in the financial plans of industrial ministries of Ukrainian SSR, which makes it practically impossible to apply long-term rates of payments to the budget for many of them. For instance, the number of changes made in the financial plan of the Ukrainian Minergo [Ministry of Power and Electrification] over the last 5 years (1973-1977) was as follows: 224 changes in profit, 245 in planned expenditures and 257 in undistributed profit. Moreover, the amount of undistributed profit increased 119.5 million rubles, or 79.2 percent, in 1974, 102.1 million rubles, or 3.5-fold, in 1975, and it decreased 25.7 million rubles (15.1 percent) in 1973, 79.6 million rubles (32.8 percent) in 1976, and 8.6 million rubles (8.6 percent) in 1977. The financial plan was amended just as frequently over the period analyzed in the other ministries of the republic as well.

Under such conditions it is, of course, practically impossible to apply long-term rates as the basis for relations which enterprises, associations and ministries have with the budget. To apply rates effectively one must first achieve unchangeability of the annual assignments of 5-year national economic and financial plans along with wholesale price stability. Whereas the latter can be obtained before commencement of compilation of the 5-year plan on a command basis, unchangeability of assignments over a 5-year period is hardly possible and is indeed not advisable. The dynamic variation of the needs of the Soviet economy and scientific-technical progress will constantly give rise to the need for changes to be made in the development plans of industries. Adjustment of annual financial plans and the change in the shares of the industry and the budget are inevitable. Holding the number of these corrections to a minimum is another matter.

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* "Problemy upravleniya sotsialisticheskim promyshlennym proizvodstvom" [Problems of Managing Socialist Industrial Production], Vol I, Moscow, Progress, 1977, p 150

** "Problemy razvitiya sotsialisticheskikh finansov" [Problems of the Development of Socialist Finance], Moscow, Finansy, 1977, p 76.

Fourth, the share of the budget represents the sum total of the charge on capital and the undistributed profit, which are subject to standards for each individual planning date, which deprives the charge on capital of any role as an incentive and raises the question of the advisability of its continued use in the present system for building up economic incentive funds.

Fifth, the system of profit distribution being experimented with presupposes centralized performance of calculations concerning payments from profit at the level of the ministry, and consequently, as shown by the experience of USSR Minpribor, supervision over the activity of enterprises drops off considerably.

Moreover, since enterprises are the actual payers of the charge, when the profit plan is unfilfilled, there may be overpayments to the budget and a prolonged withdrawal of "own" working capital out of circulation because a number of production associations and enterprises are quite far from the ministry. This could be a factor tending to deteriorate the financial condition of the basic units in the cost-accounting system and could cause nonpayment of accounts to suppliers of products, to the bank and to the budget.

However, what we have said does not deny the possibility of using the principles of the method of shares in the distribution of profit in certain industries. In industries which determine scientific-technical progress and which have the necessary conditions for profitable production and fulfillment of production, delivery and profit plans (instrumentmaking, for example) use of this method will yield constructive results. But in this case it is advisable to apply the method of shares only at the level of the ministry of the industry, which will make it possible to guarantee that the funds formed and the reserves of financial resources will be used under supervision of the exporters of the ministry. This creates the basis for relative stability of the rates applied in profit distribution, simplifies the planning of measures to retool enterprises for the years of the 5-year period, and is conducive to better balance among physical, labor and financial resources.

In most industries, those under union-republic jurisdiction above all, distribution of profit by shares is hardly possible in the near future. In these industries it is wise to use a system which would take into account the constructive aspects of both the method of shares and also the present system of profit distribution and of payments into the budget, but it would be free of the latter's shortcomings. To be specific, this would mean strengthening the role of the charge on capital and fixed (rent) payments as incentives by increasing their relative share in the profit distributed and by linking them more closely to the economic interests of the collectives of cost-accounting production associations and enterprises.

Increasing the relative share of the charge on capital has mostly to do with the problem of setting the rates of this charge. The opinion of the need to raise the rate of the charge to the level of the coefficient of efficiency of capital investments is the most widespread. But an analysis of actual conditions of economic activity demonstrates that the reduction in the profitability of production that has taken place over the last 7 years does not in most cases allow for implementation of this proposal (see Table 1).

Table 1. Change in the Profitability of Production in Ukrainian Ministries and Departments Over the Period 1970-1977

Ministries (Departments)	Level of Profitability Relative to Assets for 1977, %	Deviation in Levels of Profitability, 1977/1970, percentage points
Minenergo	5.8	- 5.3
Ukrainian Petrochemical Industry	19.1	-11.3
Ministry of Ferrous Metallurgy	10.6	- 6.5
Ministry of Timber Industry	24.8	-13.8
Ministry of Building Materials Industry	14.2	- 7.6
Ministry of Light Industry	46.3	-14.2
Ministry of Food Industry	12.4	-26.4
Main Administration for Fruit and Wine Industry	33.7	-29.9

In view of the present level of profitability we must admit that raising the rate of the charge on capital to 12 percent is possible only in three ministries (Ministry of Timber Industry, Ministry of Light Industry and Main Administration for Fruit and Wine Industry). The enterprises of the Ukrainian Petrochemical Industry should be set a rate of the charge on capital at a level no higher than 9 percent, and for the other ministries (except Minenergo) it should be 6 percent.

It is advisable to collect the charge on capital both on "own" and also on borrowed funds, and from the amount of credit taken enterprises should also pay a minimum level of interest to the bank (1-2 percent). This will make it possible to establish normal ratios between "own" and borrowed capital and to eliminate the unjustifiably high redistribution of the capital of economic entities through the banking system, whose payments into the budget are growing steadily.

There is a need to revise the present benefit related to the charge on capital. Elimination of many of them (because their use is economically inadvisable) will increase the relative share of the charge on capital in the balance-sheet profit of production associations and enterprises.* But increasing the relative share which the charge on capital represents in profit can be effective only if a closer relationship is established between that share and the formation of economic incentive funds, the material incentive fund above all. We are referring to implementation of the proposals that have been made to apply departures from the plan for the charge on capital (either a saving or overexpenditure) to the material incentive fund (either entirely or partially). In a situation when there has been a substantial weakening of the role of profitability as an indicator in the system of success indicators of the performance of enterprises and associations, it is quite legitimate to raise the question of taking deviations in the charge on capital directly into account when the size of economic incentive funds is established. Calculations show that the effect of deviations in the charge on capital increases many times over in this case, intensifying the effect which this instrument has on raising production efficiency.

It should have an important incentive effect for fixed payments to be made first (where they exist or can be applied). This has a definite leveling effect on the cost-accounting profitability of individual enterprises within an industry.

Until a scientifically sound method is devised for distinguishing between those factors in the formation of profit which are dependent on enterprise performance and those which are not, more extensive use must be made of an instrument for regulating profitability like the turnover tax.

It is wise to assign undistributed profit annually in an absolute amount (as a function of the level of payment of capital charges into the budget and to have fixed planned amounts paid into the budget for each reporting period. In the stage of compilation of plans undistributed profit may in certain cases be equal to zero. Its size changes only when there is a change in the targets of the national economic plan. In this case the undistributed profit will in essence represent the share of the budget expressed not in percentages, as in the case of USSR Minpribor, but in a fixed amount, which can vary as changes are made in the targets of the national economic plan. If the changes in the plan are made by the ministries and associations themselves, then all payments into the budget are kept within the limits of the planned amounts. The existence in the profit distribution system of an element regulating relations between the economy and the budget, even when expressed in a fixed amount, is an important factor for ensuring stability in the effect which rates for other types of payments and deductions have on coverage of expenditures.

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* Many Soviet economists have made such a proposal.

All of the industry's expenditures should be subject to allowances set for the years of the 5-year plan on the basis of the targets of the national economic plan (following the example of USSR Minpribor) and should be made available to it according to the annual allowances which have been set. Individual rates--applied to total calculated profit minus proportional payments--are also established for the most important items of the financial plan (financing capital investments, economic incentive funds, the growth of allowances of own working capital, and the reserve financial aid), and they are revised when there is a centralized change in the indicators of the national economic plan. Deductions from profit are made at the individual rates within the limits of the overall rate.

The following steps are indispensable in increasing the effectiveness of the normative method of building up sources of financing planned expenditures, especially for the reproduction of fixed capital:

i. a clear distinction between measures to be financed under the plan of the industry (subindustry) and those financed under the plan of the basic unit in the cost-accounting system;

ii. a closer linkage of the long-term rates of deductions into cost-accounting funds for financing expenditures with the projected amounts of capital investments and outlays for retooling of production, and the stability of those rates;

iii. reflection of the mandatory share of credit in financing outlays for reproduction of fixed capital in calculation of rates of deduction from profit, depreciation and other possible internal sources;

iv. a certain independence of production associations and enterprises in using the resources of cost-accounting sources of financing in carrying out retooling and reconstruction. There is a need in this connection to create certain reserves in construction organizations and regional material and technical supply agencies.

The proposed system of planned payments of undistributed profit necessitates revision of the present procedure for distribution of above-plan profit. Since contradictions may occur among the interests of enterprises, the industry and the state budget in this very stage of distribution of above-plan profit, fixed rates of distribution of that profit should be established on the basis of the actual relationships in its distribution in the country (republic) over the previous 5 years. Here two variants are possible. In the first (which is preferable) three shares in above-plan profit--the enterprise, the industry and the state--are firmly fixed. In this case the amounts by which proportional payments exceed the plan are paid into the budget from the share of enterprises and the industry (the funds of the industry are called upon in part only when the planned value of fixed capital is exceeded). In the second variant two rates of deductions--of the enterprise and the industry--are set; this is possible provided really strenuous planning targets are assigned to each for all the principal indicators of the national economic and financial plans. In this case payments into the budget from above-plan profit will be made only when proportional payments, payments under the charge on capital in particular, are higher than planned.

Calculations made on the basis of the data of enterprises in Ukrainian SSR show that the "shares" of the basic cost-accounting unit, the industry and the budget in above-plan profit may average as follows (see the chart).

Chart of Distribution of Above-Plan Profit for Enterprises of Ukrainian SSR (in percentages of the total amount of above-plan profit)

	Variant I	Variant II
1. Basic cost-accounting unit (association, enterprise)	40	40
2. Industry (industrial associations and the ministry)	25	60
3. State budget	35	
4. Above-plan proportional payments, which may be used for economic development, are paid into the budget from the funds of the industry (Points 1 and 2)*	7	7

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* Points 1 and 2 are shown without taking into account the funds collected under Point 4.

This approach will make it possible to create a sufficiently maneuverable financial reserve for ministries under union-republic jurisdiction of Ukrainian SSR: in the amount of about 80 million rubles in Variant I, and under Variant II 180 million rubles over and above the amounts of their temporary financial aid fund.

The above-plan profit which represents the industry's share should be used for two purposes. One portion goes to industrial associations, whose accounts with the budget are centralized, to cover payments by enterprises when the profit plan and planned amounts of undistributed profit are not achieved. The payments are made directly by the production associations and enterprises on the basis of authorizations for payment issued by the industrial association and in its name. The financial authorities make the recalculations and regulate payment relations at the level of the industrial association.

The second portion of the funds, which remains at the industry's disposition, is used by the headquarters of the ministry to cover the shortage of own working capital of subordinate enterprises on the basis of annual results and to create a stable financial situation in the industry as a whole, and the remainder of these funds can be applied to retooling of production. Profit from miscellaneous sales and nonsales income should be used for the same purposes; the planning of these items should be turned over to the ministry, and USSR Gosplan would subsequently reflect the amount calculated for the industry in balance-sheet profit. Of course, further improvement of national economic planning and raising the level of the stability of the plan will be conducive to successful functioning of the proposed system of payments into the budget.

To create additional incentives for economic entities to adopt strenuous plans, the experience of USSR Minpribor should be followed in applying penalties against production associations and enterprises. Their share of profit exceeding the plan by between 2 and 5 percent would be reduced by 30 percent, and their share of profit exceeding the plan by more than 5 percent would be reduced by 50 percent, and deductions paid into the budget would be increased accordingly.

Thus use of the proposed system of profit distribution makes it possible to cover all three levels of administration--the ministry, the industrial association and the production association (enterprise); to enhance the effect which the charge on capital and other proportional payments have as production incentives; to ensure centralized regulation and balancing of financial, physical and labor resources. Moreover, the planned undistributed profit, representing a "share," expressed in an absolute amount, takes on an incentive role of its own.

Retaining payment of undistributed profit will make it possible to ensure that planning and financial authorities will constantly monitor the correctness of formation of production cost, profit and economic incentive funds.

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7045
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IMPROVEMENT OF ENTERPRISE COST ACCOUNTING STRESSED

Moscow IZVESTIYA in Russian 10 Oct 79 p 2

[Article: "Cost Accounting of an Association"]

[Text] Within the system of measures aimed at improving planning and intensifying the effect of the economic mechanism with regard to improving production efficiency and the quality of work, defined in the decree of the CPSU Central Committee and the USSR Council of Ministers, special importance is attached to the development of cost accounting. As a method for the planned carrying out of social production, cost accounting arises out of the very essence of the socialist system of management and it is directed towards the carrying out of state tasks with minimal resource expenditures. Today the basic principles underlying the cost accounting activities of associations are undergoing further development and the sphere of their activity is being expanded.

First of all, the economic-operational independence of associations in ensuring profitable operations is becoming more extensive and interesting. This is associated with the conversion over to economic-financial activities based upon stable tasks for the five-year plan, with distribution by years, and long term economic norms. Such stability is making it possible to see the internal resources that will be possessed by an association in the future (for 5 years) and it is creating conditions for realizing planned improvements in production organization, for improving production from a technical standpoint, for organizing the production of new types of products and for carrying out measures aimed at accelerating the rates of growth for labor productivity. At the same time, an association which has stable internal resources at its disposal is capable of ensuring the consistent realization of its own social plans.

The development of cost accounting initiative is also being promoted by a change in the method for developing the 5-year and annual plans for associations. These plans will be composed based upon the control figures made available to them by higher organizations, which was not the case earlier. Conditions are being created for performing more active work in uncovering internal economic reserves and undertaking more intense tasks for the five-year plan.

In preparing their plans, the associations, jointly with the marketing organizations, must carry out preliminary work with the consumers and suppliers in connection with determining the nomenclature or assortment of products for inclusion in the economic agreements. This will make it possible to substantiate the production program in a more thorough manner, in a natural expression and also from the standpoint of a value computation.

The importance of this factor increases to a considerable degree owing to the fact that in planning and evaluating the cost accounting activities of associations, a greater role is played by the natural indices. The implementation of the principle of self-repayment and profitable operations will be based not upon achieving gross value indices, as was the case earlier, but rather it will depend first of all upon fulfillment of the delivery plan for products of a production-technical nature and consumer goods, in accordance with the nomenclature or assortment and in keeping with the schedules established in the agreements concluded.

At the same time, the plans call for the gradual conversion over to using the index for normative net output for determining the production volume and also for measuring labor productivity and planning the wage fund. The principle of self-repayment will undergo even further development during the conversion of associations over to the normative method for distributing profits. In accordance with this method, a stable norm will be established for deductions from the profit which becomes available to the associations, differentiated by years of the five-year plan. For example, if approval was given for an association to realize 30 million rubles of profit annually and for a norm for deductions from it amounting to 70 percent, then 21 million rubles will be placed at the disposal of the association. These funds will be used for financing capital investments, for achieving an increase in working capital, for the formation of economic incentive funds and for other planned expenditures.

The second part of the profits -- 9 million rubles -- will be subject to payment into the budget. Rather than in percentages, it is recorded in the plan as an absolute total. This means that if the association obtains 25 million rubles of profit instead of 30 million as called for in the plan, then its obligations with regard to the budget do not change but rather they remain at the same level as set forth in the plan. In such a case, a decrease takes place in the amount of profit left over for satisfying internal requirements. Hence the normative method for distributing profits intensifies responsibility for the fulfillment of state planned tasks concerned with raising production efficiency.

At the same time, this method raises interest in fully taking into account all internal economic reserves during the preparation of plans. This will be achieved through the establishment of a special regime for the distribution of above-plan profits. The plans call for 50 percent of such profit to be placed at the disposal of the associations at those times when over-fulfillment of the profit plan does not exceed 3 percent. If over-fulfillment of the profit plan is greater than 3 percent, then only 25 percent of the excess profit is placed at the disposal of an association, with all of the remaining above-plan profit being added to the budget.

In developing the principle of material interest and ensuring growth in labor productivity, considerable importance is attached to the measures set forth in the decree for introducing into the practice of planning, on an extensive scale, a system of wage norms per ruble of output, differentiated by years of the five-year plan depending upon the computed ratio between growth in labor productivity and average wages, while taking into account growth in the volumes of production output and also the effects of a number of other factors.

The introduction of long-term wage norms per ruble of output presupposes an increase in the responsibility of associations for the proper expenditure of wage funds. Thus the material incentive fund can be used for covering an overexpenditure of the wage fund providing the amount involved does not exceed the amount transferred to the material incentive fund last year in the form of wage fund savings.

Changes are taking place in the methods employed for evaluating plan fulfillment. Today such evaluations are being carried out using an increasing total since the beginning of the five-year plan and when analyzing fulfillment of the annual plan -- an increasing total since the beginning of the year. Thus an association is authorized on the one hand to cover non-fulfillment of a task during subsequent periods of a year or of a five-year plan and, on the other -- to overfulfill in a bold manner the planned tasks, by agreement with the consumers, while not having to fear that the volume of goods produced during a subsequent period may be somewhat less than was achieved earlier, even though plan fulfillment on the whole is ensured by the increasing total.

More favorable conditions are being created for production mechanization and automation, for the replacement and modernization of equipment and for realizing improvements in the organization of production and labor. Such work will be financed using resources from the production development fund, which is increasing in size.

A new trend in the development of cost accounting for associations is the expansion that has taken place in their rights with regard to determining the specific manner in which use is to be made of the funds for material incentives, socio-cultural measures and housing construction and production development. The assignment of resources is determined independently by the production associations. The removal of these resources from an association, as was often done earlier, or their use for other purposes is forbidden.

The development of cost accounting principles for management calls for an increase in control over the ruble both by the state through its organs (financial, banking, statistical and others) and by one association with respect to another and also within the associations. The extent of the penalties, fines and other sanctions employed for violations of mutual obligations is determined by existing statutes governing deliveries of goods of a production-technical nature and consumer goods and also by other established documents. The decree calls for a strengthening of the regime associated with the use of these sanctions for the purpose of supporting the interests of those associations which are performing well.

The role played by payments for the use of state resources is being raised. Thus, control over the proper use of productive capital will be carried out by raising the normative payment for this capital, as a rule in the amount of 6 percent, and reducing the list of capital from which this payment was not withdrawn earlier in the form of a temporary benefit. Profit will be used for making payments for above-norm non-credited supplies of material values and uninstalled equipment. At the same time, it is stipulated that in those instances where an association ensures fulfillment of its production and profit plans, with the capital costs being less than the amount planned, the savings realized from fund payments remains at its disposition and the payments into the budget are reduced by this same amount. A payment is being introduced for the water which the associations procure from aquicultural systems, with the expenses being included in the net output costs.

The implementation of the measures outlined in the decree for developing cost accounting in the associations represents a new stage in raising the role they play in social production, in solving the tasks associated with production intensification and raising production efficiency.

7026
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WAYS TO IMPROVE ECONOMIC ACCOUNTABILITY IN ASSOCIATION REVIEWED

Moscow EKONOMICHESKAYA GAZETA in Russian No 45, Nov 79 p 11

[Article by Doctor of Economic Sciences N. Garetovskiy: "Strengthening Economic Accountability"]

[Text] In the system of measures to improve economic leadership, an important place has been given to a strengthening of economic accountability as one of the methods for the planned management of social production. For precisely on the basis of the further development of economic accountability in the production associations and enterprises together with other measures, will the central task be solved of achieving the highest production efficiency and improving work quality.

The Stability of the Quotas and Standards

The Decree of the CPSU Central Committee and the USSR Council of Ministers of 12 July 1979 provides for a broadening of the limits of the economic accountability principles and a strengthening of their effectiveness. This will be achieved by a number of measures. An important role has been given to the changeover to the economic and financial activities of the associations (enterprises) on a basis of stable quotas of the five-year plan and the long-range economic standards, including standards for the wage fund and economic incentive funds. This means that at present the production collectives will know ahead of time what resources they can possess in the corresponding year of the five-year plan, what amounts of economic incentive funds they will create and how they can grow proceeding from the established standards, if additional reserves are disclosed which would influence a rise in labor productivity and improve product quality in comparison with the indicators of the five-year plan.

There are great opportunities for further developing the economic accountability initiative, independence and efficiency in changing the procedure for working out the five-year plans of the associations and enterprises. The point is that the compiling of the designated plans will now be done on the basis of the control figures which are given to them by the superior organizations. In being guided by these figures as well as possessing definite stable internal resources, the economic leaders and the social organizations of the enterprises can carry out effective and broad work among the workers to approve tauter plans.

The approach to working out the annual plans is also to be changed. Here the main thing is that these plans will be compiled starting from below, that is, from the associations. And this creates conditions for their better elaboration and, of course, raises the responsibility of the associations for the technical and economic soundness of the plans. Proceeding from the quotas and economic standards of the five-year plan for the given year, the production associations, on the basis of developing the socialist competition and the disclosed reserves, will work out counterplans.

At present the associations in working out the plans will themselves, together with the marketing organizations, conduct the preliminary work with the consumers and suppliers in determining the range or assortment of the product for concluding economic contracts. This, of course, is a fundamentally new condition for drawing up a thoroughly sound production program both in physical units and in cost terms.

The principle of economic accountability acquires a deeper content with the changeover of the associations to a normed method of profit distribution. The essence of this method is that on the basis of the quotas approved in the five-year plans, the associations will be given a stable profit deduction rate for the profit left at their disposal and differentiated according to the years of the five-year plan. For example the association has been given an annual profit totaling 20 million rubles and a deduction rate of 60 percent for it. This means that the association will receive 12 million rubles to be used for financing capital investments, for an increase in working capital, and for forming economic incentive funds and other planned production development expenditures. But if the association lacks internal assets for financing the construction of production-end projects, then bank credits and budget funds can be utilized for these purposes.

The second portion of the association's profit amounting to 40 percent is to be paid to the budget. In our example, this is 8 million rubles. With the normed method of profit distribution, the share of the budget is financed in the plan not in percentages but rather in an absolute total. This means that if the association receives a profit of not 20 million rubles as was planned, but rather, let us say, 15 million rubles, then its obligations to the budget do not change, but remain as before (that is, as stipulated in the plan), and the budget would receive 8 million rubles. In this instance the total profit left for internal needs will be not 12 but only 7 million rubles. In other words, the normative profit distribution method raises responsibility for the fulfillment of the state plan quotas for increasing production efficiency. With the underfulfillment of the profit plan, the association will be forced to curtail its expenditures.

At the same time with the normative method of profit distribution, the economic accountability incentive is raised for fuller consideration in plan elaboration of all the internal reserves which bring about a rise in efficiency. This is expressed in the procedure for the distribution of above-plan profit. It has been established that 50 percent of the above-plan profit is to remain at the disposal of the associations. However, this is only in those instances when the overfulfillment of the profit plan is up to 3 percent. If it is higher, then the association may keep only 25 percent of the total comprising this excess. All the remaining above-plan profit is turned over to the state budget. Such a procedure encourages the accepting of a taut profit earning plan.

An Interest in End Results

The economic accountability principle strengthens the incentive of the collective and each worker to improve the results of their labor. This is related primarily to the increased role of the quality indicators in assessing the activities of the association and their influence on the amount of material incentive. At present the fulfillment of the product delivery plan along with the meeting of the quotas to raise labor productivity and improve product quality, to increase profit (or reduce product costs), will become the basic material incentive for the production collectives, and for creating their economic incentive funds.

The formation of the designated funds will be carried out using stable rates approved in differentiated amounts for the years of the five-year plan. The main thing in organizing the material incentive will be its relation ship with the fulfillment of the quotas for the five-year plan. To a greater degree the activities of the association will be encouraged aimed at improving the use of the productive capital and the material and labor resources for the purposes of improving the quality operating indicators. For this reason in the setting and fulfilling of the counterplans by the association, the deductions into the economic incentive funds will be made at increased rates. Simultaneously with the rise in the role of the five-year plan in organizing the incentives of the associations, the methods of evaluating plan fulfillment will also be changed. It is now stipulated that the course of fulfilling the five-year plan is to be evaluated in a running total from the beginning of the five-year plan, and the annual plan in a running total from the start of the year. This will make it possible for the associations to have a more flexible approach to fulfilling the five-year and annual plans and encouraging the collectives.

The role of profits as a source of resources will rise in organizing economic incentives. At present the deducting of money into the material incentive funds for the growth of labor productivity and for improving product quality or for other quality indicators will be carried out at rates set, as a rule, in percent of the profit. In other words, profit under the new conditions will operate not only as one of the main evaluation indicators for the operations of the associations, but its influence is to be strengthened as the dynamic base for encouraging the quality indicators which, in turn, have a direct impact on profits.

In the economic accountability activities of the associations, a greater role will be played by the production development fund in financing measures related to mechanization and automation, to replacing and modernizing equipment, improving the organization of production and labor, and carrying out other work related to the technical reequipping of production. It has been established that the associations themselves are to determine the range of the designated work and the necessary resources for carrying them out, and their proposals with calculations are to be submitted to the ministries which incorporate these expenditures fully in the capital construction plans within the limits set for them. Here they are obliged to supply such work with the necessary material resources and the amounts of contracting work.

Another innovation is that if, in the course of carrying out the annual plan, the association has a need to carry out some additional work related to the technical reequipping of production, in addition to that work which has been considered in the plan, then the expenditures on this can be carried out above the limit of the state capital investments from unutilized money in the production development fund and the above-planned deductions into this fund. Work carried out from money in the fund for sociocultural measures and housing construction is to be financed in an analogous manner.

Another new feature in the development of economic accountability for the associations is the broadening of their rights in determining the specific directions for utilizing the money of the material incentive fund, the fund for sociocultural measures and housing construction, and the production development fund. The introduction of the new management methods provides that all the questions related to utilizing the money of the designated funds in accord with their specific purpose are to be determined independently by the associations. Any confiscation of this money from the associations, as was often the case previously, and the spending of it for other purposes are not to be permitted.

The development of the principle of material self-interest for the labor collectives is of important significance in the struggle to raise labor productivity. Among these principles the main one is the broad introduction into planning practices of a system of long-term wage rates per ruble of product differentiated according to the years of the five-year plan. This differentiation will be carried out depending upon the calculated ratio between the growth of labor productivity and average wages, considering the rise in the product production volume. In the calculation there will be the broader use of technicall sound labor standards and labor productivity will grow more rapidly than wages, and in addition labor intensiveness will rise related to the changeover to new highly efficient products, an improvement in product quality and the deterioration of geological mining conditions.

It must be pointed out that the introduction of long-term wage rates per ruble of product also presupposes a rise in the responsibility of the associations for the rational expenditure of the wage fund. Should the association overspend the wage fund, money from the material incentive fund will be used to cover this within the limits not exceeding the wage fund savings which was transferred last year into this fund. The procedure of relationships in applying sanctions is also to be altered. While previously it was permitted to have offsetting of such sanctions arising in the process of carrying out economic contracts, at present the rule has been established that sanctions are to be applied in a compulsory procedure and without the offsetting of claims.

Thus, the carrying out of the measures outlined by the decree to develop economic accountability within the associations is a new step in raising their role in social production and in the growth of efficiency.

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BETTER CONTROL OVER INTRODUCTION OF SCIENTIFIC DEVELOPMENTS

Moscow EKONOMICHESKAYA GAZETA in Russian No 47, Nov 79 p 9

[Article by Doctor of Economic Sciences V. Pokrovskiy, department chief of the State Committee of the USSR for Science and Technology: "Scientific Developments: Their Path to Introduction"]

[Text] The organization of work in the area of creating and introducing new equipment should provide the maximum utilization of scientific results for the purpose of obtaining a mass effect. Industry, as the data indicate, is increasing the scope of developing new equipment. But the scope of using scientific results is often insufficient. One of the reasons for this is the current procedure for planning the creation, development, introduction and dissemination of new equipment. In posing the tasks, usually only the capabilities of the scientific research institutes and design bureaus are considered, but no attention is paid to the ability of industry to incorporate the scientific results within the optimum times. The failure to consider the economic conditions for implementing the developments makes it impossible to obtain the full potential economic effect.

Selecting the Object of a Specific Program

The planning system should encompass all the stages of the "research--production--application" cycle, and should ensure the development of a sound assortment of new equipment. It is essential to guarantee the coinciding of the moment of obtaining a scientific or technical result with the optimum conditions for its realization on a scale determined by national economic needs. The principles of specific program planning meet these requirements most, and the party and governmental decrees on the further improvement of the economic mechanism have accentuated the use of this planning.

A focus on satisfying national economic needs requires a higher role of the central planning bodies, particularly in setting the long-range aims and determining the rational scale for the use of the obtained results. In formulating the specific and technical programs, particularly important is the question of selecting their subject. It is virtually impossible and indeed no need to create and realize a program for each scientific and technical result.

As an average for each of the annually introduced 600,000 measures relating to new equipment, the annual economic effect is, according to the data of the last 10 years, a little more than 6,000 rubles. At the same time there are examples when highly efficient inventions which provide for the development of the sectors at a more rapid pace and solve the long-range problems of the technical reequipping of production are introduced extremely slowly or on an insignificant scale. In particular, these would include the machines for pulse cutting of metals, the storage of agricultural products in a gaseous medium with an increased nitrogen content, needle milling, and surface active concrete additives.

Of the scores of thousands of inventions utilized annually in the nation, less than 1,000 provide an annual savings of over 100,000 rubles, and just several score save more than 1 million rubles. In this manner a rather clear distinction is drawn between the so-called basic and upgrading innovations. The basic innovations are usually the result of revolutionary processes in the development of science and technology. Their accelerated realization can be achieved most effectively by working out special programs which provide, as is stipulated in the decree, the ultimate aims, the technical and economic results, and the dates and stages for carrying out the work, from the scientific research to the practical utilization, including the organization of series production of the new product and the introduction of progressive production methods.

These programs should be realized chiefly through the state economic and social development plans. At the same time the upgrading innovations in their majority can be reflected in the sectorial scientific and technical plans and in the plans of the production associations and enterprises.

On the Basis of Schedule Orders

The effectiveness of the system for developing scientific and technical achievements will be increased if it will be based on expert evaluation, particularly nondepartmental, and on an economic evaluation of the finished examples, and the national economic sectors will be determined in which the innovations can find broad use. It is important in a compulsory procedure to incorporate the selected projects in the plans of the corresponding ministries and departments. At present it is stipulated that in the plans of the ministries, associations and enterprises, quotas will be set for carrying out scientific and technical programs, and for working out, developing and introducing new, highly efficient production processes and product types.

For this, in utilizing the experience of a number of the machine building sectors, it is advisable to isolate quotas for the development and introduction of new equipment as a separate section of the tekhpromfinplan of the association and enterprise. In this plan, for each quota relating to the preparation of production and the development of new equipment and new, progressive types of industrial products, it is possible to determine the demand for all types of resources which obviously must be reflected in the corresponding divisions of the tekhpromfinplan as a separate line.

A rise in the effective use of scientific and technical potential can also be noted in those industrial ministries where specific program planning of the sectorial scientific and technical problems on the basis of schedule orders has been widely developed for accelerating the process of developing and introducing new equipment. The schedule order reflects all the stages in the work of creating new equipment, the executors of the work are indicated, including the enterprises at which the new equipment or production methods should be introduced, the expenditures for carrying out the work are given, as well as the interrelated dates for the creation, development and introduction of the innovations. At present, 15 industrial ministries have been converted to this system. It has been most widely developed in the Ministry of Electrical Equipment Industry, the Ministry of Heavy and Transport Machine Building, and in the chemical industry in which virtually all the scientific and production subdivisions engaged in producing new equipment are directed by the schedule orders.

A significant effect can be achieved by converting the sectors to a new system of financing work in the area of new equipment using the unified scientific and technical development funds. The advantage of creating this consists primarily in pooling all the financing sources for scientific and technical progress which previously had a strictly specific purpose. The ministries gain greater operational and economic independence in allocating the money among the various stages of developing the new equipment. With this method of financing it is possible to have a changeover to the normative method of planning expenditures on science and the industrial incorporation of its achievements. Favorable conditions are also created for an integrated solution to scientific and technical problems. The newly approved indicator of "the economic effect from introducing scientific and technical measures" will be of important significance for introducing the new equipment.

Accelerating Factors

Production concentration is an organizational factor in accelerating the introduction and extending the scale of use of new equipment. As was shown by an analysis of data from almost 41,000 production associations and enterprises, new equipment was not introduced, as a rule, by the small enterprises which comprise 23 percent of the total number of enterprises and which are responsible for 4.3 percent of the volume of the produced product. This again affirms the timeliness of the policy outlined by the party for completing the formation of the production associations as the basic self-financing unit of industry. Practice has shown that in an ever greater number of production and scientific-production associations as well as in the large scientific institutions, special subdivisions are being set up for introducing the results of the scientific developments and new equipment.

One of the essential reasons for the slow use of scientific and technical achievements in production is the turning over to production of incompletely developed examples of new equipment by the scientific and design organizations, without a careful technological study of their manufacturing and thorough checking and testing. More than one-half of the developments submitted for introduction by the organizations of the USSR Academy of Sciences and the higher school, for example, could not be recommended by the USSR State Committee for Science and Technology for use due to design or production shortcomings.

Such shortcomings stem basically from poor experimental facilities at these institutions. Many VUZes, academy institutes as well as certain scientific research, design organizations and enterprises do not have testing stands, experimental units or experimental shops, while the experimental shops are often engaged in producing the series product. The construction plan for experimental bases is unsatisfactorily carried out with a fulfillment of 75-80 percent for capital investments, and even lower for putting this capital into operation.

For this reason planned measures have now been provided for developing work related to the testing and incorporation of new equipment. It has also been established that the cost of the work of an industrial nature in developing and introducing new equipment and carried out by money from the unified scientific and technical development fund is to be accounted for in the overall product volume with the addition of the normed profit according to the corresponding groups of products. In this manner the enterprises and associations will have a material incentive for the accelerated development of the models of new equipment.

Economic incentives hold a particular place in the system of managing the introduction of scientific achievements into the national economy. Due to the fact that the incentives are based upon the indicators of the current and not the long-range activities, the collectives of the associations and enterprises would have economically little interest in developing and introducing new equipment. Moreover, during the period of developing the production of new products, at times the production volume in cost terms also declines, and this has led to a reduction in the economic incentive funds.

It has now been provided that increased rates will be set for the formation of the economic incentive funds for the production associations (enterprises) which significantly increase the output of new, highly efficient products.

The incentive effect of bonuses for new equipment is to be strengthened. This will be aided by the conversion of the scientific organizations, associations and enterprises to a self-financing system for organizing work in the area of creating and developing new equipment on the basis of schedule orders.

The scientific-production and production associations, the enterprises and organizations in machine building are introducing one-shot bonuses for the development, introduction and mass output of particularly important and highly efficient types of equipment and machines, as well as for creating and introducing fundamentally new production processes. Provision is made first of all for encouraging the leaders of the work as well as the workers directly involved in the creation and introduction of these types of equipment and production processes.

The comprehensive realization of the party and governmental decisions to improve the management mechanism will open the way to a significant acceleration of scientific and technical progress.

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PROFIT DISTRIBUTION PROCEDURES FOR MANAGEMENT LEVELS REVIEWED

Moscow EKONOMICHESKAYA GAZETA in Russian No 47, Nov 79 p 10

[Statute Governing the Procedure for Profit Distribution of the Ministries, All-Union (Republic) Industrial Associations, Production Associations and Enterprises Which Have Converted to the Normative Profit Distribution Method as approved by the USSR Ministry of Finances, the USSR Gosplan, the USSR Gosbank and the USSR Stroybank on 12 October 1979]

[Text] The present statute defines the profit distribution procedure for the ministries, the all-Union (republic) industrial associations, the production associations and enterprises which, in accord with the Decree of the CPSU Central Committee and the USSR Council of Ministers of 12 July 1979 No 695 "On Improving Planning and Strengthening the Effect of the Economic Mechanism on Raising Production Efficiency and Work Quality," on the basis of the quotas of the five-year plan are to be given a profit deduction rate (differentiated by the years) which would remain at their disposal for carrying out expanded reproduction, for economic incentives and other planned expenditures.

This rate is set for the purposes of strengthening the economic responsibility of the ministries, the VPO [all-Union production association] and the associations (enterprises) for the results of their financial and economic activities and for increasing their incentive to make the most effective use of the material and financial resources, and for increasing the money left at their disposal depending upon the improvement in the end results of economic operations with a simultaneous rise for the deductions paid to the state budget for making general state expenditures.

The ministries and departments, simultaneously with the draft economic and social five-year plan and in accord with it, should work out 5-year (with an annual breakdown) as well as annual financial plans, and submit them for approval to the USSR Ministry of Finances or the Union republic ministry of finances. The absolute amount of budget payments set in the economic and social development plans for the ministries are a guaranteed payment and with the nonfulfillment of the approved profit plan in any year of the five-year plan, the budget payments provided in this five-year plan for this year are to be paid fully by a corresponding reduction left at the disposal of the ministry, the VPO, or the association (enterprise).

The above-indicated decree of the CPSU Central Committee and the USSR Council of Ministers stipulates that when the associations (enterprises) accept counterplans which exceed the quotas of the five-year plan for the next year, the deductions into the economic incentive funds for this excess are made at an increased rate.

The total additional profit going under the increased rates into the economic incentive funds of the associations (enterprises) is excluded from the profit which would be distributed under the established rate of the ministry, the VPO and the association (enterprise).

1. The profit deduction rates for the profit to be left at the disposal of the ministry, the VPO, or the association (enterprise) in the five-year plan (differentiated by the years) are set as follows:

a) For the all-Union and Union republic ministries of the USSR by the USSR Ministry of Finances and the USSR Gosplan;

b) For the Union republic ministries of the Union republics by the corresponding Union republic ministry of the USSR;

c) For the republic ministries of the Union republics by the ministries of finances and the Gosplans of the Union republics;

d) For the all-Union (republic) industrial associations by the appropriate ministry;

e) For the production associations and enterprises by the corresponding industrial association or ministry, if the production association (enterprise) is directly under the ministry.

With the permitted adjustment of the quotas of the five-year plan for the corresponding year, the necessary corrections can be made simultaneously in the overall profit deduction rate for the profit left to the ministry, as well as in the total profit deductions to the state budget. When necessary the ministries may amend the rates and deductions for the budget for subordinate VPO and associations (enterprises).

2. By the total amount of planned profit one understand the balance profit of the ministry, the VPO, or the association (enterprise) for all types of operations.

In the financial plan (the income and expenditure balance) the total amount of the planned (balance sheet) profit of the ministry, the VPO or the association (enterprise) is set with a distribution by quarters with an isolating of that portion of the profit which is to be channeled into the income of the state budget.

In determining the planned balance sheet profit to be distributed according to the established rate, one includes the profit to be used in the separate procedure established by the USSR Council of Ministers.

3. The absolute (guaranteed) total of payments to the budget as approved for the ministry, the VPO or the association (enterprise) for financing the general state expenditures in the five-year plans (with a breakdown by the years) consists of the following:

a) The payment for the fixed productive capital and the normed working capital (the capital payment) calculated in the procedure established by the instructions of the USSR Ministry of Finances and the USSR Gosplan for the procedure for confiscating payments for productive capital by the budget;

b) The fixed (rent) payments in the totals calculated in accord with the instructions of the USSR Ministry of Finances and approved by the USSR State Price Committee;

c) The profit deductions (as the difference between the total approved amount of payments to the budget and the total planned collections of the capital payment and the fixed (rent) payments).

4. The planned profit as defined in accord with Point 2 of the current statute and the profit which is left at the disposal of the ministry (VPO or association (enterprise))according to the rate set for them is used for the following purposes:

a) The financing of state capital investments (in the portion not covered by amortization deductions and other financing sources);

b) Retirement of bank credits;

c) Payment of interest on credit;

d) The increase in the own working capital rate;

e) Deductions into the unified scientific and technical development fund which is formed in the ministry (department);

f) Deductions into the following funds: Material incentives; sociocultural measures and housing construction; production development;

g) Deductions into the incentive fund for the creation, development and introduction of new equipment (for the portion formed from a reduction in costs);

h) Covering losses from the operation of the housing and utility systems, expenditures on the running of cultural and educational institutions and Pioneer camps;

i) The deduction into the reserve of the ministry (department) for providing financial aid;

j) The deduction for a superior organization under the profit redistribution procedures (for the associations (enterprises) and VPO);

k) Other planned expenditures in accord with the current legislation.

5. The ministries, the VPO and the associations (enterprises) within the profit left at their disposal (according to the established rate) can alter its use within the annual plans, with the exception of money provided for the financing of state capital investments, for the unified scientific and technical development fund and the deductions into the economic incentive funds.

6. The profit according to the report balance of the ministry, the VPO or the association (enterprise) is considered the actual profit.

Subtracted from the actual profit is the profit to be used within the special procedure, including the profit going in the established procedure to make up a temporary lack of own working capital and retire credits received for this purpose, as well as the additional profit (the total of the surcharges on the wholesale price) obtained from the sale of a new highly efficient product or a product which has been awarded the state Quality Sign, as well as profit channeled into the economic incentive funds at the increased rates under the condition of fulfilling the accepted counterplans.

7. With the establishing of instances of overstating the wholesale prices, the total amount of the obtained additional earnings is paid by the enterprise to the income of the budget in the established manner. In line with this, the actual profit is reduced by the total additional receipts obtained as a result of overstating the established prices and violating the current price formation provisions. The actual profit is also reduced by the total additional profit obtained in individual instances by the enterprises and organizations from producing a product with a deviation from the standards and technical conditions. This amount is paid to the budget income and is not included in the report data on plan fulfillment under product sales, and for the enterprises in the food industry, this is reduced by the total savings from the output of products with deviations from the standards, technical conditions and recipes. Here the total additional earnings obtained as a result of overstating the prices and rates and collected for the income of the state budget is excluded from the actual profit for that report period in which a decision was handed down for the collecting of this total by the budget, regardless of in what period (in the current or previous year) this occurred.

With the nonfulfillment by the association (enterprise) of the conditions which provide the right for leaving profit at its disposal (in accord with Point 2 of the current statute), this profit is distributed in the generally established manner.

8. The above-planned profit of the ministries, the VPO and the associations (enterprises) is defined as the difference between the actual profit (Points 6-7 of the statute) and the planned profit (Point 2 of the statute).

9. With the overfulfillment of the profit plan by up to 3 percent inclusively, 50 percent of the above-planned profit remains at the disposal of the ministry, the VPO or the association (enterprise), and 50 percent is channeled into the budget. In the event of the overfulfillment of the profit plan by more than 3 percent, they are left with 25 percent of the total comprising this excess, while the remaining portion of the above-planned profit goes as income of the state budget for financing general state measures.

10. With the fulfillment of the production and profit plans with a smaller value of capital than is stipulated in the plan, the savings in the capital payment is left at the disposal of the associations or enterprises (with the exception of the savings related to the nonfulfillment of the approved plan for completing fixed capital, production capacity and projects).

The payments to the budget as established for the ministry as a whole in accord with the general profit distribution rate are reduced by this amount.

The payment for above-norm uncredited inventories of materials and uninstalled equipment is paid to the budget from the profit left at the disposal of the association (enterprise).

11. Above-plan payments of the fixed (rent) payments are made from the corresponding reduction in the profit deductions to be sent as income of the state budget. If the actual total of these payments is below the plan, then the profit deductions owed to the budget are increased by the total difference.

12. Along with the payments (stipulated under Point 3 of the current provision), the budget receives a portion of the additional profit obtained by the enterprise from the sale of new highly efficient products and products with the state Quality Sign, as well as other payments established by the current legislation.

13. The above-planned profit left at the disposal of the ministry, the VPO or the association (enterprise) is used for the following purposes:

a) To pay interest on bank credit in those instances when the actual amounts of these payments are above the totals stipulated in the plan;

b) The repayment of bank credits obtained for capital investments above the total provided for in the financial plan;

c) Replenishing a shortage of own working capital and retiring credits obtained for these purposes;

d) Additional deductions into the material incentive fund, the fund for sociocultural measures and housing construction, and the production development fund, including the deductions at the end of the year into the material incentive fund from the unutilized savings in the wage fund in comparison with the established rate or the planned wage fund (under the condition of fulfilling the production plan and the growth of labor productivity);

e) Additional deductions into the bonus fund for the creation, development and introduction of new equipment;

f) For paying bonuses under the socialist competition;

g) Repaying the losses from the operation of the housing and utility system when these losses exceed the total provided in the financial plan;

h) Deduction into the funds and reserves of superior organizations as formed in the established procedure;

i) Other planned expenditures relating to the development of the sector in accord with the current legislation.

14. The above-plan profit remaining after distribution or the designated purposes is used by the ministry, the VPO or the association (enterprise) for financing additional expenditures which arise in the process of carrying out the plan.

15. In the event of the nonfulfillment of the financing plan for the state capital investments, the unutilized portion of the profit provided for in the plan for this purpose remains at the disposal of the ministry, the VPO or the association (enterprise), it is transferred to a special account of the USSR Stroybank institutions, and is used in the following year to make up the permitted lag.

The savings formed in other items for the use of profit are employed by the ministry, the VPO or the association (enterprise) at their discretion, with the exception of the financing of capital investments (above the approved limit), and deductions into the economic incentive funds and the unified scientific and technical development fund.

16. The portion of the profit (indicated in Points 14 and 15 of the current statute) remaining at the disposal of the association (enterprise) with their agreement can be centralized by the superior organizations (by the VPO and the ministry). In an analogous manner the ministry can centralize a portion of the designated profit left at the disposal of the VPO.

17. With the nonfulfillment of the profit plan, the budget payments from profit are made in the amounts provided for in the plan by an appropriate reduction in the profit left at the disposal of the ministries, the VPO or the associations (enterprises).

18. The payment procedure for the profit payments of the ministries, the VPO and the associations (enterprises) with the state budget is determined by the instructions of the USSR Ministry of Finances.

TIGHTER CONTROL ON PRODUCTION EFFICIENCY URGED

Moscow EKONOMICHESKAYA GAZETA in Russian No 46, Nov 79 p 5

[Article by K. Yefimov, department chief of the USSR Gosplan: "Indicators for the Technical Level of Production"]

[Text] A thorough consideration of scientific and technical achievements in the economic and social development plans is one of the important areas for improving planning.

The results of carrying out scientific and technical measures are now becoming fundamental in all areas of the national economic plan. Quotas for the growth of superior quality product and other quality indicators, for example, are the most important in the production section of the plan, and quotas for reducing the use of manual labor are key to the section on labor and social development. In turn such new indicators of the state plan for the introduction of science and technology as the development and introduction of new production processes and products at newly completed enterprises and projects are compulsory quotas in building new enterprises as well as in the expansion and reconstruction of existing ones, and are accounted for in the capital construction indicators.

On an Optimum Scale

Greater significance is being given to the comprehensive special scientific and technical programs which should end with the organizing of new production. Consequently, the point is to introduce the results of research and development on an optimum scale, and not to check out the scientific and technical decisions at the head projects as is now the case in the scientific and technical programs in effect in the Tenth Five-Year Plan. An indicator is to be introduced for the effectiveness from the introduction of scientific and technical measures.

The indicators for the technical level of production and the produced product are becoming the most important ones. Their consistent application in planning practices for the introduction of science and technology is an essential condition for achieving the greatest end socioeconomic results from the use of scientific and technical achievements.

Such indicators have begun to be employed for the first time during the current five-year plan, however they still do not sufficiently influence the technical level of production and the effectiveness of the measures carried out. For this reason the decisions of the party and government are aimed at improving the system of indicators in such a manner as to provide an opportunity to influence the basic directions for raising the technical level of production. These indicators should first of all determine the quality structure of the product to be produced, the growth of the proportional amount of its progressive types, as well as an improvement in the economic use of the product. It is equally important to ensure an improvement in the technical base of the sectors or types of production, to improve equipment utilization, to raise the level of mechanizing and automating production, and to expand the use of fundamentally new and progressive production processes. Finally, the indicators should also effectively influence a reduction in the material intensiveness of production.

For example, in machine tool building it is important to change the proportions between the output of metal cutting equipment and equipment for pressure working in favor of the latter. This will create an opportunity to manufacture pieces which are close to the required shape and size, and in a number of instances which fully match them. The planned production scale for technical equipment should ensure the carrying out of the quotas to increase the metal use factor which, starting with the 1980 plan, will become one of the basic indicators for the technical level of production in the machine building ministries. This indicator, along with design improvement, will have a substantial impact upon the metal intensiveness of production.

In planning the production structure of metal cutting equipment, it is essential to provide for an optimum share of the special and unit machines with numerical programmed control, machine tools of the machining center type, manipulator robots, and automatic and semiautomatic lines. The indicators of the plan must reflect the production of equipment for fundamentally new production processes, including: units for plasma-mechanical, laser, electrochemical and other types of metal working which make it possible to sharply increase labor productivity, in addition to the new types of vibration equipment. For example, at the Izhorskiy Zavod Production Association, on one lathe in working stock from high alloys using a plasma-mechanical unit, labor productivity was increased by 4-fold. A significant national economic effect can be obtained by widely introducing this method.

Of great significance for raising the technical level of production are the quotas for improving the general quality indicators. Among them one could mention such indicators as the average tire life, the average cement grade, the average operating life of diesels by groups, the production of diesel fuels with a sulfur content of 0.2 and lower, the average iron content in the market ore or nutrients in mineral fertilizers.

The group of indicators for raising the level of the technical base and using equipment characterizes the introduction of optimum unit capacity of the equipment and the return from a unit of capacity. In planning practices such indicators have already been used. For example, quotas have been established for increasing product output on units and assemblies with a high unit capacity. Such equipment makes it possible to increase labor productivity significantly, as a rule, by a multiple of the increase in the capacity of the units, and to reduce the cost of a unit of equipment capacity by 5-15 percent and the proportional metal intensiveness by 7-10 percent.

The plan quotas for expanding the use of fundamentally new and progressive production processes as well as for raising the level of production mechanization and automation on all management levels put the introduction of scientific and technical achievements in the area of production methods under control. The essential thing is that the scale of their use be coordinated with the deliveries of equipment and other resources. Thus, in ferrous metallurgy indicators have been introduced for the progressive types of iron ore mining such as strip mining using a cyclical-flow production method and the underground method using self-propelled machines and vibrating equipment. There are indicators for the volume of efficient methods for steel casting in the convertors with a capacity of 300 tons and higher and for continuous steel casting. In nonferrous metallurgy, an indicator has been set for the working of the deposits of the nonferrous metal ores by the strip method using powerful water-filled and granulated explosives with full mechanization for the process of charging the blasting holes.

Obviously there is no necessity of providing a detailed description of all groups of indicators for the technical level of production. Their importance is sufficiently obvious from the examples given. A system of indicators for the technical level of production and the produced product with its proper completeness and correct consideration of the specific features of the sectors and types of production, will provide an opportunity to properly link the planning of science and technology with other sections of the plan, namely: production, capital construction, labor and social development, costs and profit, and the rise in the effectiveness of social production.

An Evaluation of the Technical Level

There are plans to carry out a range of organizational measures and measures to increase the economic incentives aimed at ensuring a high technical level of production and produced product. For these purposes the State Committee under the USSR Council of Ministers for Science and Technology along with the ministries in 1979-1980 will assess the level of the produced production equipment, and later this will be done systematically.

Obligatory nondepartmental expert evaluation is to be introduced for the technical and economic indicators of particularly important types of products and production processes to be developed, starting with the technical specifications and ending with the end results. Head organizations are to be established for state testing of the most important types of products for production, technical, cultural and household purposes. All of this must provide a high technical and economic level for the new developments and increase the responsibility of the collectives for the quality of the new equipment.

In the next 2-3 years the completion of the forming of production associations as the basic industrial element undoubtedly will accelerate the pace of technical reequipping. Certainly the large economic units possess greater capability for improving production specialization and cooperation and for allocating the necessary resources. The experience of such large production associations such as Uralmash [Ural Machinery], AvtoZil [Automotive Plant imeni Likhachev], Kirovskiy Zavod, LOMO [Leningrad Optical Instrument], and others indicates that in these complexes there is the most complete organizational integration of science and production. The point is that the large associations have integrated scientific-technical, design and engineering subdivisions which use modern equipment, automation, instruments, and computers, which carry out the required experiments and testing, and are engaged in the development of products and production processes under industrial conditions.

An important measure is the accelerated conversion of the scientific research, design, engineering and other organizations, the experimental enterprises, the scientific-production and production associations and the enterprises of the industrial ministries to a self-financing system for organizing work in the area of creating, developing and introducing new equipment on the basis of schedule orders or contracts. This system should be based on the end results, that is, on the introduction of the work and the achieved national economic effect, and depending upon this, the economic incentive funds are to be formed. Nor must we underplay the importance of the work (including the normed profit of an industrial nature) to develop and introduce new equipment and carried out from the money of the unified scientific and technical development fund within the total product volume. Such a procedure creates an incentive for the associations and enterprises to rapidly carry out work on the new equipment.

The surcharges set by the decree for the wholesale price for new highly efficient production and technical products should operate efficiently. The association (enterprise) is to be left 85 percent of the money earned by the surcharges. Here the surcharges are not considered in the plan, but the evaluation of plan fulfillment is made considering them.

Maintaining a fixed level of wholesale prices over the five-year plan in utilizing cheap types of materials in production, in comparison with the employed ones, eliminates the contradiction between the desire of the collectives to reduce the consumption of resources and the volume indicators of the plan.

In working out the 1980 draft plan, a start has already been made in realizing a whole series of provisions from the Decree of the CPSU Central

Committee and the USSR Council of Ministers regarding the indicators for the technical level of production and the produced product. Approximately three-quarters of the reduction in product costs should be obtained by raising the technical level of production at the operating industrial enterprises during the current five-year plan. The introduction of new equipment on an optimum scale makes it possible to increase the total amount of this savings. It is important that the ministries even now work insistently on improving the system of indicators for the technical level of production, in consistently introducing it.

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PRODUCTION PLANT'S SUPPORTING SERVICES DISCUSSED

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA in Russian No 10, Oct 79 pp 20-35

[Article by S. A. Kheynman, professor and doctor of economic sciences, Economics Institute of the USSR Academy of Sciences, Moscow: "An Important Link in the Production System"]

[Text] Under the conditions of present-day production, which is unceasingly becoming more complicated and is becoming saturated with the most up-to-date technology, and as a new course is adopted toward intensive and efficient methods of economic operation, the role of supporting services is considerably enhanced. About 50 percent of the industrial work force is employed in this sphere of activity. Resources invested to develop the sphere of services supporting production have been increasing year after year, but the level of services rendered is still lagging notably behind the needs of production. In his report address of the CPSU Central Committee to the 25th party congress L. I. Brezhnev pointed up the serious shortcomings and large losses in this domain: "But probably just as much is lost because far from all ministries and departments are undertaking vigorous development of specialization, redistribution of capital to the advantage of intersector production operations and to set up plants specialized in the production of tools, jigs and fixtures and standardized assemblies and parts. Repair facilities are fragmented beyond all reason. These tendencies result in a considerable squandering of resources of all kinds." There is a large economic benefit to be gained from improving the services that support production. This selection of articles discusses ways of solving this problem and the possibilities of a considerable increase in the efficiency of the sphere of supporting services.

It is well known that in recent years the results of production--growth rates of national income and the output of industry and agriculture--have been lagging appreciably behind the rates of growth of production resources. This relationship and an analysis of the development of the principal sectors of the USSR economy provide grounds for saying that the potential for raising production efficiency that lies in organizational and structural effort is more and more being pushed into the forefront among the strategic problems of the USSR's economic development.

Should we try to discover and define the heart and main essence of the organizational and structural potential, then we would have to speak about how the growing scale of production and the systematic increase in the complexity of its interconnections have not been accompanied to a sufficient degree by progress in the social division of labor and industrial cooperation. The growth in the volume of production resources, above all of investments, is not being backed up with structural shifts and a system of organizational measures which would bring about a minimization of losses, the fullest and most integrated utilization and preservation of all resources, as well as preservation of the finished product in all stages and phases of the process of reproduction.

The so-called auxiliary services play a very important role in solving these problems at the level of the enterprises. In material production, and this is especially vivid in the industrial sector, there always exist in every industry and at every enterprise those principal functions of the actual production of the finished product of that enterprise, which naturally are separate, and also those functions which are supportive of that production. We can distinguish at least two groups of processes in the services supporting the main production operation. The first is the group which is unfailingly present in any production enterprise:

i. shipping, handling and storage of materials and products;

ii. repair and maintenance of production equipment and heat and power facilities;

iii. services to production sections related to tools, jigs and fixtures--storage, recordkeeping and issuance, repair and maintenance;

iv. process control and testing;

v. material and technical supply and sales, often integrated with transportation and warehouse management.

We have not mentioned in this list the adjustment of manufacturing equipment and production lines for pilot and experimental shops, since in the context of scientific-technical progress they should be an inseparable part of the main production operation.

The second group of auxiliary processes is not in all cases a necessary component of production, but it arises and develops because of the organization of production and division of labor that have come about in a given industry or interrelated group of industries. This group includes in-plant production of the following:

i. energy--electric power and heat to meet the enterprise's needs;[1]

ii. assemblies and parts to repair equipment and nonstandardized specialized manufacturing equipment for the principal production operations;

iii. production tools (standard and specialized), jigs and fixtures.

All the processes listed in the first and second groups are vitally important to the enterprise, they are equally indispensable and, of course, equally prestigious, a matter with which certain authors in this issue of EKO (A. I. Buzhinskiy in particular) are rightly concerned. And finally, it is in the interest of the enterprise and the industrial sector as a whole that personnel employed in the services supporting production not be slighted in any way when it comes to the level of their pay and their social status.

A description of principal production processes and supporting processes would not be complete if we did not touch upon the management of production. Along with the work of the design and production engineering services, actual current management of production, and the everyday organization of production and work, the tasks of radical improvement and reorganization of production arise periodically to meet the following needs:

i. development and introduction of a more optimum organizational structure and management system and new quality control systems,

ii. more optimum and flexible spatial organization of production--the layout of shops and sections, creation of flow charts for the handling and transport of materials and products, and so on.

Here again we can obviously speak about two groups of functions: direct ongoing management and organization of production and their periodic improvement (which we might refer to as a supporting service aimed at raising the level of current management).

It seems to us that if our orientation is toward more detailed division of labor, more intensive concentration and accordingly continued progress in the socialization of production as a practical matter, as V. I. Lenin put it, then the approach to the two groups of functions in production and management can and should be different. As we have already noted above, they are all vitally important, without exception, and therefore should be performed in the best and most efficient manner, their organization should be scientifically sound, and they should have the proper technical facilities.

Given the system of industrial organization that has taken shape in the country and the lack of specialized enterprises and organizations which would furnish the necessary means of production and services, it is quite natural that enterprises and associations, even the most progressive ones, are developing "their own" supporting-service subdivisions, are reinforcing and expanding them, and, of course, are defending them, since otherwise the results of their activity would be jeopardized.

But our treatment and solution of these problems will be essentially different if we examine them from the standpoint of the national economy. Auxiliary services (specialized auxiliary shops and divisions, those workers performing the same functions in principal production shops of plants and factories) employ, according to various estimates, between 40 and 50 percent of all industrial workers, that is, between 11 and 13 million persons. We should emphasize that setupmen, which the authors of articles published in this issue refer to as a progressive and promising auxiliary worker group, represent a negligible share of this group running into the millions even in machinebuilding (3.95 percent) and at our largest motor vehicle plants (4.15 percent).

In the United States in the seventies, according to available calculations, the share of auxiliary workers was about 35 percent, and in machinebuilding, according to figures for 1975, it was 26.3 percent, as compared to 40.3 percent in the USSR. The result is that labor productivity per worker in the industrial sector and in the machinebuilding of the USSR and the United States considerably exceeds labor productivity per auxiliary worker.

It is well known that 45 percent of all the country's metal-cutting machine tools are in operation in repair and machine shops of plants and factories outside the machinebuilding industry, that is, in their auxiliary services. Moreover, about 30 percent of the machine tools used at machinebuilding plants (16.5 percent of all the country's machine tools) are installed in their auxiliary services. This means that only 38 percent of the metal-cutting machine tools are engaged in principal machinebuilding production. Over the last 16 years 47 percent of the growth in the country's stock of machine tools went outside the enterprises in machinebuilding and the metal manufacturing industry.

This is the resource aspect of the situation that has come about with the functioning of auxiliary services.

But the matter does not end there. The now-established practice is also having an impact on the performance of auxiliary services. The products and services resulting from in-plant services and subdivisions are ordinarily of poorer quality than those in specialized enterprises and organizations, they are not up to the present-day technical level, and they are more expensive. This applies to a particular degree to the supporting services of enterprises outside the machinebuilding industry which support their production operation by engaging in the large-scale production of parts and assemblies for equipment and nonstandardized technical devices and accessories. These shops and divisions do not, of course, have the sophistication of machine-building, and this cannot help but affect the quality of the work they do, which is not always on a professional level. This is the performance aspect of the present situation with the organization and functioning of auxiliary services. It is quite obvious that there is quite a bit to think about in this field; there is an interrelated set of urgent problems which are either unsolved or have not been resolved satisfactorily. It is this which motivated our magazine to devote the "roundtable" and the other articles in this selection to the problems of the services which support production.

Let us move on to examining the principal spheres of service supporting production at industrial enterprises.

Transportation and Warehouse Management

Figuratively speaking, in-plant transportation and warehouse management are a system of vessels supporting the process of blood circulation in the enterprise, its mobility. Slowdowns and disruptions in their operation threaten the formation of "thrombi," which, as we know, can cause "infarcts" and "heart attacks."

In-plant transportation refers to more than just cranes, lift trucks, conveyors, pipelines and warehouses, but also means millions of workers. If we measured the total length of routes along which materials and products are moved throughout the entire chain of links in the manufacturing process, from arrival or extraction (in the mining industry) through the shops where the workpieces are prepared, machined and assembled (in the case of machine-building), through warehouses and inspection stations, and if we take "photographs" of the workday in all processes,[2] we obtain an exhaustive description of the organization of production in space and in time.

The spatial layout of the enterprise and its shops and sections is a most important initial element in the organization of production. It in turn determines to a very great degree the organization of production in time--the continuous nature of the production process and all the numerous in-plant, in-shop and interoperation connections, as well as performance of deliveries of all types on schedule.

An analysis of reported data on the length of the production cycle in certain production operations[3] shows that manufacturing time proper does not always take up a predominant share of the cycle by any means. A sizable share is taken by transportation and handling time and also by what is called "lying" time--between operations and so on, that is, a time that depends mainly on the organization of production, materials handling and storage.

The 25th CPSU Congress paid particular attention to recording the time factor and set the task of reducing the length of production cycles. Its performance necessitates scientific preparation of flow charts for the movement of materials and products in production, which are then used as the basis for optimum spatial location of all types of principal and auxiliary equipment, initial, intermediate and final warehouses, inspection stations, testing, and so on. This spatial layout, including energy outlets--electric power, steam, oxygen, and so on--should at the same time be flexible as well, that is, adapted for the transition to new types of products and suitable for layout revisions.

American specialists have this to say about the organization of production: anyone who wants to mechanize all the handling operations performed in an enterprise is bound to fail. First they have to be shortened, reduced and optimalized, and only then mechanized.

It is established practice in U.S. enterprises to obtain table models of all types of equipment and to analyze different versions of its location fairly regularly, as a kind of serious game. This is regarded as an important condition for raising production efficiency.

Studies of this kind are also useful to our enterprises. They should ensure creation of the most expedient and progressive system of machines, fitted organically into the integrated complex of materials-handling devices and the flow chart of the relevant production operation.

In the mining industry, especially of the open-pit type (open-pit ore and coal mines), the entire system of production equipment constitutes a materials-handling system.

In groups of interrelated industries which have a continuous type of production and the products of whose labor are liquids or free-flowing solids, or energy--in metallurgy, petroleum refining, chemistry, the electric power industry, the cement industry, and a number of branches of the food industry--the materials-handling processes, as well as systems for intermediate storage, are an ideal testing ground for automation.

Industries whose technology and product are of the discrete type--machine-building, the furniture industry, the garment industry, and so on--are a domain for the most complicated handling operations involving large numbers of articles of different kinds and dimensions, operations going in different directions and at the same time strictly regulated in time. According to figures published in the United States, the volume of materials handling goes as high as 50 tons per ton of the finished product in certain production operations of this type. The requirements which must be met in the storage, custody and issuing of materials, equipment and products in these industries also belong to these specific features.

The systems approach to solving these problems requires that we bear in mind that every production unit is a link--a subsystem--in the complicated system of the social division of labor. All transport operations (from outside into the given unit, within it and from it to the outside) are related to the activity of the other subsystems of the industrial sector or of social production (agriculture, transportation, retail trade, and so on), and in the interests of economy of social labor they should be optimally combined with all others with whom they conduct reactions.

As we have attempted to show, there are elements of "group similarity" in the great variety of transportation and storage processes. The entire range of transportation, materials-handling and warehouse equipment can be reduced to a few homogeneous systems by organizing and developing specialized production covered by standard specifications and tolerances.

The systems approach to solving this problem necessitates that the whole range of components be taken in their relationship to one another. The following are the most important of them: containers, packaging equipment and materials-handling and warehouse equipment. The containers should be suitable for transport within the production enterprise and outside it, it should ensure the preservation of all the use values of the articles being transported, it should be economical and suitable for tallies and storage, and it should be standardized and should conform to the parameters and dimensions of warehouses, trucks and railroad cars. When container production is specialized, consideration should be given to the efficiency of its production, ease of assembly, reusability, and so on.

Attention should be paid in the manufacture of materials-handling equipment to the possibility of its interaction with appropriate types of containers, to proportionality between its dimensions and the dimensions of warehouses and freight cars and to making it suitable for wide and narrow aisles, for freight platforms and for handling freight within freight cars, and so on.

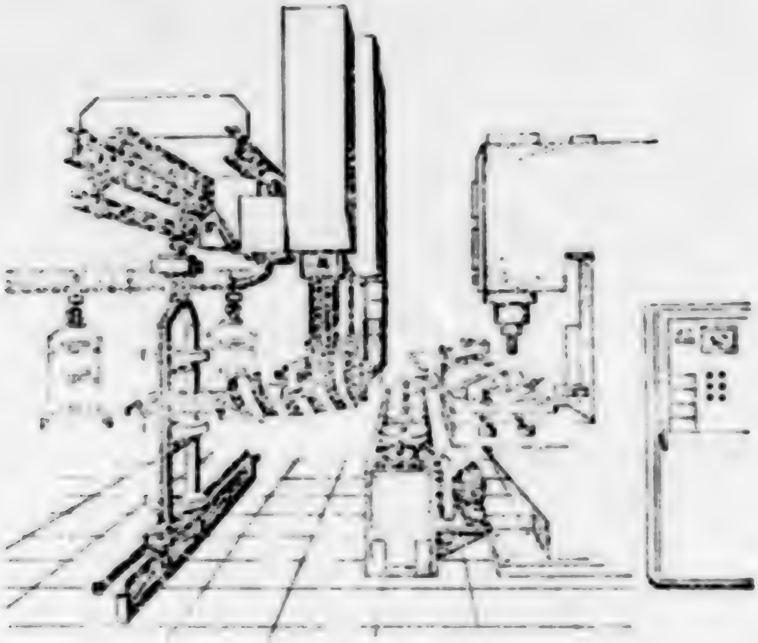
Quite a few important problems have not been solved in the improvement of transportation and warehouse management. It seems to us that the several which follow are among the initial ones.

First--creation of a strong specialized branch of machinebuilding for large-scale (yet carefully taking into account the requirements of consumers) production of materials-handling and warehouse equipment along with a full line of the necessary parts for replacement and repair and upgrading assemblies, covered by the manufacturer's guarantee of installation and servicing, along with warranty periods and equipment service centers.

Second--gradual centralization and development of the specialized production of all types of containers, using progressive materials and designs.

Third--concentration of the intention of enterprises on improvement of the spatial organization of production and of all elements determining production time, the length of the production cycle, and so on.

Optimum solution of transportation and storage problems has been achieved to some degree (far from fully in our opinion) by only a few of the largest enterprises without outside help. Medium-size and small enterprises can hardly solve these problems in an up-to-date way. We therefore consider it extremely relevant and urgent to create an "industrial services industry"--cost-accounting associations which, relying on specialized enterprises and their own production facilities, would design materials-handling and storage systems and would furnish client enterprises the necessary equipment.



Automatic system: machine tool--conveyor--automatic positioner.

The NTO [(?) scientific and production engineering association] Kompleks of the Ministry of Tractor and Agricultural Machinebuilding, whose experience is set forth in this issue, is a good example of movement in this direction.

The Repair Service and Heat and Power

The time has come for "servicing of machines," which would include all repair services, to be regarded as a separate sphere alongside machinebuilding. As we have already noted, the stock of machine tools in this sphere is equal to or even greater than that employed in the production of new equipment. Its work force is also comparable in size to that of machinebuilding proper.

In spite of the enormous resources, the quality of machine servicing does not meet the requirements of present-day production.

The first prerequisite is, of course, to ensure the reliability of production equipment. The strategies for radical improvement of machine servicing are to a considerable degree determined outside the enterprise which is the consumer of the equipment and depend on the structure and organization of the machinebuilding industry as a whole.

The orientation toward final results in machinebuilding signifies an altered role for it in the investment process. Machinebuilding enterprises, associations and ministries are to be responsible not only for production of equipment, but also for retooling the industries which are consumers of this equipment and for its operation and modernization. This should be expressed in the organization of the centralized production of parts and assemblies for replacement and repair as well as to upgrade the equipment.

Achieving real expertise in the servicing of machines presupposes that the manufacturers of equipment work out the technology for repairing and modernizing their equipment and intervals for replacement of principal assemblies and parts based on statistical processing of data on the equipment's operation.

The scale of the Soviet economy and the enormous stock of equipment make it imperative to set up machine service departments and systems for warranty servicing and repair in all the branches of machinebuilding. Another important directive of the 25th CPSU Congress--accommodation of the consumer and a thorough consideration to his interests--should also be manifested here. Machinebuilding's performance of this important role is an essential condition for reducing the time required for new equipment to reach rated capacity and consequently for raising the output-capital ratio. This procedure will also provide feedback for equipment manufacturers.

It is indispensable to plan the specialized production of spare parts for repairing and upgrading equipment as an integral element of the principal economic activity of the relevant departments and enterprises and to include it as an organic part of the standard governing the manufacture of the equipment in question.

At the present time the great majority of implements of labor are repaired on a decentralized basis. Centralization is an indispensable condition for making repairs more efficient. But it is very important to fix the optimum limits of centralization and to think through the strategy for organizing repair service.

Who does the repairs? The mechanic's service in the shop, the machine repair shop of the head mechanic's division, specialized repair enterprises organized by a given department operating that equipment, or machine servicing enterprises set up by associations manufacturing the equipment.

Where is the equipment repaired? In the shop where it is in operation, in the shop of the chief mechanic's division, or at repair facilities. Cooperative arrangements between outside specialized repair subdivisions and the enterprise's repair service are also possible.

This issue of EKO also includes some practical experience and proposals in this area.

An important factor is improving the adequacy of the equipment used in repair work. To be specific, there is a need to organize specialized production of tools and gear for dismantling and assembling equipment and for other types of work.

Equally important is the level of reliability, quality and life of the equipment manufactured. Improvement of these characteristics represents a tremendous potential for reducing equipment repair costs. These problems are the topic for a separate discussion.

If it is permissible to dream about a Golden Age in the organization of production, then on the basis of our present ideas, the following organization of repairs would be ideal:

i. full supply of the necessary assortment of spare parts, components and assemblies, manufactured centrally;

ii. development of a network of machine service departments everywhere, with guaranteed manufacturer's repair and servicing;

iii. creation of a network of specialized repair facilities located in areas where the relevant types of equipment are concentrated; they would repair mobile equipment in their own shops and would send out competent teams where equipment is stationary;

iv. existence at enterprises of chief mechanic's divisions and small machine repair shops and units which would do preventive maintenance on equipment, would organize its repair and as needed would combine its resources with those of the specialized units mentioned above on a cooperative basis.

Certain fragments of this picture (which on the whole is still utopian unfortunately) exist already and are developing, as indicated by the experience of VAZ [Volga Motor Vehicle Plant], AvtoZIL [Moscow Motor Vehicle Plant imeni I. A. Likhachev], the Shchekino association Azot, etc.

If the chief mechanic's service is to be able to concentrate its efforts on servicing and repairing the means of labor, then not only must the production of spare parts and assemblies be specialized, but a network must be developed of machinebuilding enterprises specializing in the manufacture of nonstandard special types of manufacturing equipment, devices and gear to fill the individual orders of consumers (enterprises and scientific research institutes).

Rebuilding worn assemblies and parts, which makes it possible to reduce the production of spare parts for repair, is quite an important problem.

Intervals for renewal of equipment, of course, are having an impact on the present situation with equipment repairs. According to publications of the USSR Central Statistical Administration, the retirement of the active portion of fixed capital (machines and equipment) of the industrial sector because of dilapidation and wear was 2.5 percent of fixed capital at the beginning of the year in 1973 and 2.4 percent in 1977. In machinebuilding these figures are 2.1 and 2.0 percent, respectively, in ferrous metallurgy they are 1.6 and 1.4, respectively, and in the chemical and petrochemical industry they are 1.9 and 2.1 percent, respectively. This is between two-thirds and one-half of the figures in the industrial sector of the United States. This situation with the renewal of equipment naturally tends to increase the volume of excessively expensive major overhauls and also medium and current repairs. The extensive use of old repaired equipment is slowing down the introduction of progressive new technology. It is indispensable to speed up the process of replacement and renewal of the stock of equipment. This was pointed up in the decisions of the 24th and 25th CPSU congresses.

Tool Service

Inadequate development of the specialized production of tools and the nearly complete absence of specialized production of production jigs and fixtures is among the essential disproportions determining the noticeable lag of machinebuilding behind the growing demands of the economy, as pointed out by Comrade L. I. Brezhnev in his speech at the November (1978) Plenum of the CPSU Central Committee. Large machinebuilding enterprises have created their own giant tool shops, which meet the plant's needs for a considerable portion of standard tools and most of the specialized tools and production accessories. For instance, at one of our motor vehicle plants there are 6 tool shops (including the manufacture of stampings, patterns, and so on) with a work force of 4,000. At another motor vehicle plant similar shops have a work force in excess of 3,000 workers, and so on. Not infrequently the workers of plants stoutly say that the tools which they manufacture "for themselves" are cheaper than if they purchased them. This "economic miracle" has a simple explanation: the "inexpensiveness" of their production cost is explained by the fact that only shop expenses are included in it.

The principal way to improve tool service is quite obvious--development of specialized production of tools. It is indispensable both because labor intensiveness and capital intensiveness of the decentralized production of tools and production accessories are excessively high and also because ensuring their high technical level is the most important prerequisite for improving the quality of the product of primary production.

Examination of the principal (though not all) functions of the sphere of services supporting production allows us to draw a number of conclusions.

The present technical level and organization of work of auxiliary services do not meet the demands of present-day production and the opportunities afforded by scientific-technical progress. The labor intensiveness and capital intensiveness of these services considerably exceed the levels achieved in the industrially advanced capitalist countries.

The existence of a strong "subsistence economy" at many enterprises can hardly be taken as established and necessary once and for all. After all, an unambiguous judgment of this was set forth in the report address of the party's Central Committee to the 25th CPSU Congress.

It is also necessary to eliminate artificial depression of production cost of the products which auxiliary shops produce for internal needs, thereby dispelling the illusion that they are highly profitable.

We face the task of consistently specializing, centralizing and concentrating the processes of supporting services at the level of the enterprise, the association, the industry and groups of interrelated industries and of revamping the structure of machinebuilding in this direction.

In an economy of our scale, especially when we take into account the prospects for its development, it has become indispensable to create an interrelated group of specialized industries which would competently meet the needs of enterprises for specialized production equipment, materials-handling and transportation equipment, warehouse equipment and other equipment, containers, tools and production accessories; it would also work up and solve major managerial problems and prepare project plans. It is a question of creating an industrial services industry in the USSR.

The process of specialization, concentration, retooling and eventual separation should in future extend to such an important supporting service as material and technical supply, and later sales. Even now we have experience in the USSR (in the United States they have even more) in setting up centralized and well-equipped material and technical supply depots, which take over the function of an interrelated group of supporting services to enterprises related to their external relations, including the rendering of a number of production services--the cutting of stock and materials to size and so on. The practice of the United States in this field has been discussed in the pages of EKO.[4] Certain facilities serving groups of firms and concerns see that workpieces are delivered right to the work station.

A single principle is operative here: everything for the sake of specialization, relieving primary production of all supporting service functions, performance of these functions by specialized organizations, and concentration of the attention of the enterprise and its managers at all levels on the tasks of the primary production operation.

The trajectory plotted for this process must be carefully thought out. It presupposes a gradual transition to progressive forms. This has been the strategy, for example, in specializing the shops of the main mechanic's divisions of various plants of the Ministry of Tractor and Agricultural Machinebuilding in the manufacture of certain types of tools to meet the needs of all plants in the industry. This is the strategy for specializing the shops of the chief mechanic's divisions of various metallurgical plants in the manufacture of certain specialized types of equipment to meet the needs of all the industry's plants and eventually for one of these machine repair shops to become a separate and independent enterprise.

Achievement of a high level of production efficiency and consistent intensification of production require new organizational and structural arrangements, and, of course, perhaps even to the greatest degree, the strictest performance by supplier enterprises of all their obligations to consumer enterprises by the date specified.

To repeat: the solutions should be cautious and should be introduced gradually, without detriment to production. But they are indispensable, because the volume of resources being absorbed by supporting service functions in the present organization is a serious obstacle to further growth and to raising the efficiency of social production.

FOOTNOTES

1. Sometimes energy is produced on such a scale that it is also delivered to other consumers.

2. Unfortunately, by no means all of our plants take such "photographs," though this is a most indispensable condition for adoption of optimum organization of production at the enterprise.

3. Nevertheless, unfortunately, there is no regular government reporting on the length and structure of the production cycle. There are only scattered calculations for individual products, mainly in heavy machine-building.

4. T. N. Kalinovskaya, "Organization of Warehouse Management in the United States," EKO, No 5, 1975.

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MECHANIZATION OF MATERIALS HANDLING

Novosibirsk EKONOMIKA I ORGANIZATSIYA PROMYSHLENNOGO PROIZVODSTVA in Russian No 10, Oct 79 pp 55-62

[Article by A. I. Kovalev, candidate of economic sciences, Economics Institute of the USSR Academy of Sciences, Moscow]

[Text] In our country a work force of 13.6 million (not including kolkhoz members) are engaged in lifting, moving, loading and unloading, storing and packaging. Of these, 4.5 million are in the industrial sector, 5.0 million in transportation, 1.0 million in construction and 1.5 million on sovkhozes. The largest group is that of warehouse workers--1.9 million, in-plant transportation personnel and other workers in subsidiary occupations--1.5 million, and stevedores 1.0 million; 42 percent of all those employed in these operations are women.

Workers in other occupations are also involved in materials-handling operations [PTR]. Workers in the principal production occupations lose a sizable portion of their time fetching, moving and stacking materials: machine tool operators as much as 5 percent, fitter-assemblers as much as 10 percent, coremakers and chippers--as much as 18 percent, and press operators as much as 25 percent. The relative share of workers employed in the movement of materials is 18 percent of production personnel proper, and if we take into account workers in the principal occupations who become involved, the share of expenditures of live labor in the movement of materials is 28.7 percent of labor expenditures.

The total level of mechanization in the processes of movement of materials is 27.4 percent. Only 12.5 percent of freight loading and unloading has been mechanized. Nearly one-third of materials handling consists of heavy work. It is therefore understandable that mechanization of PTR solves not only economic problems, but also important social problems. It affords the possibility of utilizing one of the largest potentials for a saving on live labor.

The performance of transport and warehouse operations requires large expenditures. For the national economy transportation costs amount to 65.4 billion rubles, and warehouse operations, according to our estimates, run to

1.5 billion rubles. In the industrial sector transport and warehouse costs represent 18.9 billion rubles, which is exactly 10 percent of the industrial sector's adjusted net output. Three-fourths of all expenditures for in-plant transportation go for remuneration of live labor, while about 20 percent goes for maintenance of fixed assets. The wages of workers doing manual work exceeds ninefold the cost of maintaining the active portion of fixed capital in the breakdown of expenditures for loading and unloading operations, and 55-fold in the breakdown of warehouse costs.

Among the reasons for such high labor intensiveness of in-plant movement of materials and the sizable expenditures for their performance we should first name the machine-worker ratio, the incompleteness of the process of mechanization, and the lack of optimality in the makeup of the stock of materials-handling equipment. The cost of materials-handling equipment per transport and warehouse worker was 1,560 rubles in the industrial sector. At the same time the industrial sector had machines and equipment worth 6,500 rubles per worker in the primary production operation, since our machinebuilding is primarily oriented toward mechanizing the primary production operation.

As shown by the last of the surveys conducted, various industries have been unequally furnished with materials-handling equipment (see Table 1).

Table 1. Mechanization Per Transportation and Warehouse Worker in Soviet Industries

Industry	Thousands of Rubles		1972/1966, %	Relative to 1972 Average in Industrial Sector, %	Relative Share of Manual Labor in Materials Handling in 1972, %
	1966	1972			
USSR industrial sector	0.89	1.56	175	100	65
Fuel	0.80	1.55	194	100	58
Ferrous and nonferrous metallurgy	1.46	2.65	181	170	32
Electric power	6.68	6.24	95	400	20
Chemical and petrochemical	0.77	1.75	227	112	56
Machinebuilding and metal manufacturing	0.90	1.42	158	91	56
Timber, woodworking, pulp and paper	0.35	0.60	172	38	68
Building materials	1.00	1.90	190	122	50
Glass, china and earthenware	0.43	0.64	148	41	78
Light	0.20	0.31	155	20	80
Food	0.28	0.47	168	30	68

The physical basis of materials-handling processes is best characterized by physical indicators, since the cost of materials-handling equipment does not increase in proportion to its productivity. The relative share of various types of materials-handling equipment in the total stock of such equipment and the absolute number of these units per 1,000 industrial production workers characterize more objectively the extent to which progressive equipment has been fully supplied to production; they are indirect indicators of the efficiency of the composition of materials-handling equipment.

The adequacy of electric and gasoline lift trucks, stacker cranes and other progressive equipment is especially important. The total density of forklift trucks of industrial enterprises in the USSR was 4.3 units per 1,000 industrial production workers, in the Ministry of Motor Vehicle Industry (1974) it was 9.6 units, in the association AvtoVAZ [Volga Motor Vehicle Plant] it was 14.0 and in MosavtoZIL [Moscow Motor Vehicle Plant imeni I. A. Likhachev] it was 17.0 units. A similar example can be given for continuous transport equipment. If we take the length of conveyors per 1,000 industrial production workers as an indicator of their adequacy, in 1973 it was 0.76 km per 1,000 industrial production workers in the motor vehicle industry, 0.81 in the Ministry of Tractor and Agricultural Machinebuilding, 0.05 in the Ministry of Instrumentmaking, Automation Equipment and Control Systems, and 0.31 in machinebuilding as a whole.

Adequacy is not merely a matter of a simple increase in the amount of materials-handling equipment. The need is for that equipment which best suits the character of a given industry's production and for the optimum makeup of materials-handling equipment.

In 10 years the makeup of the stock of materials-handling equipment in the industrial sector has undergone essential changes (see Table 2). In spite of constructive tendencies, the makeup of the stock as a whole still does not meet present requirements. What are the shortcomings in this composition? The high relative share of crane equipment, whose use makes it necessary to rig slings on freight by hand. The low relative share of industrial trucks. The relatively high share of technically obsolete cortinuous transport equipment, and the low efficiency of its utilization.

Table 2. Change in the Composition of the Stock of Materials-Handling Equipment in the Industrial Sector, in percent of the total on the basis of value

Name of Equipment	1962	1972	1972/1962, %
Overhead, gantry, portal and special cranes	29.7	29.4	268
Jib cranes	17.7	11.0	160
Light elevating machines	15.6	11.9	196
Elevators, winches and hoists	1.8	1.9	280
Continuous transport equipment	26.6	35.9	345

Table 2 (continued)

Name of Equipment	1962	1972	1972/1962, %
Industrial trucks	5.4	8.1	390
Other materials-handling equipment	3.2	1.8	150
Total	100.0	100.0	268

Belt conveyors of old designs with low productivity and a low level of mechanization of labor represent a large share of the stock of continuous transport equipment. Alongside conveyors there are 200,000 workers fetching and loading materials and performing other manual operations. Industrial trucks consist mostly of those which have to be loaded and unloaded by hand (electric and gasoline industrial tractors, pushcarts, etc.). At the same time lift trucks, which entirely mechanize materials-handling operations, represent less than 30 percent of the value of industrial trucks. That is why 60 percent of all drivers of industrial trucks in the industrial sector do the loading and unloading by hand.

Automation of the movement of materials in industry is rudimentary. To be specific, in the coal industry 135,000 workers operate materials-handling machines and machinery, but only 2.2 percent of them are running automatic materials-handling systems with remote control.

The experience of advanced enterprises has demonstrated the high economic efficiency of automated warehouses. Even so, their share is still negligible, and the creation of new ones is held up because production of the integrated equipment has not been specialized. Automation of the work of the large army of stock clerks and warehouse workers is being held back: only 2.0 percent of the 330,000 persons in these occupations are working in automated warehouses.

In the USSR as a whole 70 percent of the need for materials-handling equipment has been met, 52 percent of the need for industrial trucks, 65 percent of the need for continuous transport equipment, and 30-33 percent for warehouse equipment. The result is an unfavorable structure of the stock of materials-handling equipment, which in turn causes the low productivity of the labor of transport and warehouse personnel. It is an urgent requirement of technical progress that production of machines for in-plant transportation processes develop at a faster rate: conveyors and industrial trucks, warehouse equipment, industrial containers, and so on. According to our calculations, the stock of lift trucks in the industrial sector of the USSR should be increased to 250,000 units, according to calculations of the institute Promtransproyekt [State Planning Institute for the Development of Plans of Structures and for the Organization of Industrial Transportation]--350,000.

The following calculation can be used to show the economic efficiency of full satisfaction of the need for lift trucks. One lift truck costing 4,500 rubles along with 300 containers costing a total of 7,500 rubles, replace 7-10 workers. Replacing 1 million workers engaged in manual labor would cost 1.2-1.7 billion rubles, 450-650 million rubles of which would go to purchase between 100,000 and 145,000 lift trucks. Assuming a shift coefficient of 1.4 for their operation, 200,000 drivers would be needed. Consequently, we would replace 800,000 persons with an annual wage fund of 1.5 million rubles, and less than 100 million rubles of capital investments would be needed to build a plant with an output of 30,000 lift trucks per year.

New models of machines need to be put into production with the greatest speed, there should be a substantial increase in the number of different models so as to meet the different requirements of enterprises. Our industry is manufacturing 400 basic types of materials-handling machines. As shown by an analysis made by the USSR State Committee for Science and Technology in 1975, one-fourth of them are built to outdated designs, and 50 of the most recent and most highly productive models are not produced at all.

Materials-handling machinebuilding is excessively scattered. Materials-handling equipment is being manufactured by more than 400 plants under 40 different ministries and departments. The transition to management of the industry on the sector principle has not resulted in the creation of a specialized materials-handling machinebuilding industry. In the 1965-1975 period decentralization even increased. In 1965 34.9 percent of the total production of materials-handling equipment in the country was concentrated in the Ministry of Heavy and Transport Machinebuilding, while in 1975 it accounted for only 19.1 percent. Within the Ministry of Heavy and Transport Machinebuilding the main administration for production of materials-handling equipment accounts for only 17 percent of the output of these machines, and only 5 of the 21 plants can be called up-to-date.

There are 141 scientific research institutes and organizations under various departments engaged in preparing project plans for full mechanization of materials-handling operations, the designing of mechanization equipment and research work. A unified technical policy is not being conducted. Under these conditions it is practically impossible to arrive at the optimum product mix of materials-handling equipment in terms of models and technology, nor can an up-to-date technical level be ensured.

Harmonious development of the production of materials-handling equipment is possible if a number of requirements of unified state technical policy are met:

1. creation of a system of machines for production processes that would eliminate or combine primary and auxiliary operations;

ii. faster development of the production of the most progressive models of materials-handling equipment--systems for continuous guided movement, pneumatic-container transport, hydraulic transport, overhead conveyors with automatic routing of materials carried, so as to ensure high efficiency and full mechanization of transport processes;

iii. increase production of general-purpose units, above all lift trucks and stacker cranes;

iv. creation and production of automated warehouse complexes;

v. sharp increase in the output of industrial containers, pallets and transport containers.

Methods have been developed of comparative analysis of different alternatives for mechanizing materials-handling processes. Minimum imputed cost is taken as the criterion of comparative economic efficiency. Nomograms of fields of application of various types of materials-handling equipment as a function of the intensity and length of freight flow at minimum cost of mechanization have been devised on the basis of these methods. Selection of various types of materials-handling equipment as a function of the specific production conditions with respect to the given criterion of economic efficiency makes it possible to arrive at the needed composition of the stock of materials-handling equipment with respect to type. A broad opportunity has been opened up for applying computers in solving the problems of optimization of creation of the stock of production equipment.

In forecasts of the need for materials-handling equipment of enterprises and industries we might use a standard need for materials-handling equipment per ton of external freight traffic, as is done in certain branches of machinebuilding. It would be wise to include in planning documents at all levels a system of technical-and-economic indicators characterizing all the principal lines of development of transport and warehouse operations. A certain amount of experience has already been gained in tractor and agricultural machinebuilding. The methodological guidelines call for a specific section of the plan entitled "Plan for Development and Improvement of Auxiliary Production," in which one of the subsections would be devoted to planning transport and warehouse operations. There is also a need for periodic reports on the status and development trends in the engineering, technology and organization of materials-handling processes.

It seems to us that it has become necessary to take a new approach to the problems of mechanizing materials-handling operations: to move from partial and piecemeal solutions to the drafting of an intersector national economic program. The benefit of carrying out such a program could be between 4.5 and 5 billion rubles.

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NEW DEVELOPMENTS IN MATERIAL-TECHNICAL SUPPLY

Moscow EKONOMICHESKAYA GAZETA in Russian No 41, Oct 79 p 5

/Article: "Improving the Economic Mechanism: Something New in Material Technical Supply"/

/Text/ The recently passed decrees of the CPSU Central Committee and the USSR Council of Ministers call for several measures to be taken to further improve the material-technical supply of the national economy.

According to the State Plan

Measures directed at raising the level of planning are of importance. Plans for material-technical supply are becoming an important part of the state plans for the economic and social development of the USSR, the union republics, the ministries, departments, production associations and enterprises. The plan for material-technical supply of the national economy consists of material balances and plans for the distribution of material resources among the ministries and departments of the USSR and the councils of ministers of the union republics.

Material balances and plans for the distribution, which are compiled by USSR Gosplan, are drawn up in a consolidated product list. In the Tenth Five-Year Plan such plans were drawn up every year for approximately 2,000 product designators.

With the expansion of the product list there is an increase in the number of ties for material-technical support which require balanced coordination. Therefore the expansion of the product list, according to which material balances and plans for the distribution are drawn up for the five-year period, is envisioned. This will promote a rise in the level of soundness of the plans for material-technical supply and consequently their more complete realization. The drawing up of material balances for a ten-year period in the composition of the basic trends of the economic and social development of the USSR is also envisioned.

To strengthen the role of the five-year plan as the basic form of planning for the economic and social development of the USSR and as the basis for organizing economic management, material reserves, and in some cases reserves of production capacities as well, are to be established in accordance with established standards. The creation of reserves will make it possible to expediently deal with problems that arise in the national economy and to increase the stability of distribution plans.

For the first time the amount of deliveries of basic kinds of material-technical resources, which are required for fulfilling the five-year plan, will be approved for the ministries, associations and enterprises. And the amount of deliveries of material-technical resources, which are required for fulfilling the annual plan for a more extensive product list than is called for in the five-year plan, is approved in the annual plans.

Progressive norms for the expenditure of raw materials and materials, fuel, manufactured articles and equipment are an essential condition for drawing up sound plans for material-technical supply, material balances and distribution plans. The associations and enterprises with the participation of the territorial organs of material-technical supply, the ministries and departments are doing significant work in improving the standardization base. During the first six months of 1979 the savings in rolled ferrous metal amounted to 133,000 tons, in cement - 118,000 tons and in lumber - 104,000 cubic meters; this was accomplished by lowering the norms of expenditure. At the same time some ministries are permitting an overexpenditure of material resources in violation of established norms. There are instances where the ministries and enterprises are wittingly establishing inflated expenditure norms. All of this requires a strengthening of control on the part of USSR Gosplan and the USSR State Committee for Material-Technical Supply of the standardization base in order to more economically use all material-technical resources.

To raise the soundness of five-year and annual plans and the coordination of their individual sections - the labor plans, the financial plan, the capital construction plan and the material-technical supply plan - it is being proposed that these plans be compiled on the basis of a system of inter-coordinated progressive technical and economic norms and standards for types of jobs and expenditures of labor, raw materials, materials, fuel and energy resources and manufactured articles as well as standards for the use of production capacities and specific capital investments. For this reason the planned assignments are of substantial value to the industrial ministries, associations and enterprises for the average lowering of norms of expenditure of the more important kinds of material resources. The implementation of these indicators will promote the mobilization of the collectives of the enterprises and organizations to lower the specific material expenditures and the consumption of materials in the product that they produce.

Important for the balanced coordination of plans in general, and for five-year plans in particular, is the scientifically sound distribution of the product list among USSR Gosplan, the USSR State Committee for Material-Technical Supply, the USSR ministries and departments and the councils of ministers of the union republics; these organizations will draw up and approve material balances and distribution plans according to the product list. The need to reexamine the present system of distributing product is determined primarily by the requirement of the complex approach to the material-technical supply of the specific needs of the national economy.

Progressive Forms of Supply

Progressive forms of material-technical supply heighten the independence and cost accounting [khozraschet] responsibility of the enterprises for the results of their activity. Working on direct contacts, the enterprises have the opportunity, bypassing the organs of material-technical supply, to coordinate the assortment, quality, time periods and other conditions for the delivery of raw materials, materials, manufactured articles and to develop long-term cooperation in improving the product that is manufactured, to lower its consumption of materials and to achieve standards that meet the requirements of the best world models.

Production-technical product amounting to more than 42 billion rubles is delivered on the basis of direct, long-term economic ties. In the total amounts of deliveries of the corresponding kinds of product (excluding deliveries of a one-time nature) on the basis of direct ties is delivered more than 42 per cent of ferrous metals, 51 per cent of non-ferrous metals, 82 per cent of cement, 67 per cent of commercial lumber, 60 per cent of sulfuric acid, 73 per cent of newspaper and printing paper, 93 per cent of asbestos, 88 per cent of tires for automobiles and 77 per cent of ball bearings.

At the same time this work cannot be said to be completed. Not all large enterprises have been switched to direct ties; often the deliveries of only some, secondary kinds of product are made on this basis. Fairly often in practice deliveries on direct long-term ties are formulated in annual orders instead of five-year plans of attachment, which contradicts the very essence of direct long-term economic ties. There are cases of violating direct ties and the formal concluding of contracts, when they do not stipulate the conditions which specify the assortment, quantity, time periods for delivery and other questions which evolve from the long-term cooperation of the participants involved in direct long-term ties. USSR ministries and departments in several cases have evaded developing direct ties.

In accordance with the decree that was passed the USSR State Committee for Material-Technical Supply has been given the task of completing in 1980 jointly with the USSR ministries and departments and the councils of ministers of the union republics the transfer of production associations and enterprises to direct long-term economic ties. This alters the nature and role of direct ties; they become one of the initial factors of five-year planning.

Commencing in 1980 the USSR ministries and departments with the participation of the USSR State Committee for Material-Technical Supply are to compile and approve lists of products to be manufactured; this is being done to heighten the role of the enterprises-consumers. In accordance with these lists the consumers and supply and sales organizations will conclude contracts for delivery. Taking the lists and long-term economic ties into consideration, the enterprises will conclude contracts for the five-year period at the stage of preparing the drafts of the five-year plans. Being based on long-term economic ties and contracts, the five-year plans will in fact become the foundation of the economic activity of the enterprises, associations and ministries.

Guaranteed comprehensive supply encompasses transit product deliveries, which, as a rule, are not moved on long-term economic ties, as well as deliveries from the bases and warehouses of the material-technical supply organs. Under this form of supply the organs of the USSR State Committee for Material-Technical Supply supply consumers with material resources in the event that the supplier does not meet his supply contract on a timely basis and ship non-transit batches of product from their bases and warehouses within the time periods stipulated in the contract; the organs also render services, including the preparation of product for production consumption. Such preparation makes it possible to more efficiently use material resources. It has been estimated, for example, that the centralized within the territorial organs of material-technical supply cutting open of rolled paper decreases losses by 10 per cent.

In nine branches of industry (machine tool building, electrotechnical and chemical industries included) work in organizing guaranteed comprehensive supply is being done by the USSR State Committee for Material-Technical Supply in contact with the ministries on the basis of joint orders. However, this reliable form of supply has not been adequately developed. It accounts for only 6.7 per cent of all of the USSR State Committee for Material-Technical Supply's total wholesale sales. The decree calls for the further development of guaranteed comprehensive supply of consumers on the basis of contracts with the organs of the USSR State Committee for Material-Technical Supply.

The conclusion within the Tenth Five-Year Plan of the switchover to the centralized delivery of product to consumers from the supply and sales bases of the territorial organs of the USSR State Committee for Material-Technical Supply according to coordinated schedules will be of great importance. The centralized delivery creates the conditions for organizing the smooth supply of consumers with the materials and equipment that they need and makes it possible to regulate the work of the bases and warehouses and to more productively use automotive transport.

The Comprehensive Supply of Construction Work

The measures called for by the decree of the CPSU Central Committee and the USSR Council of Ministers to improve material-technical supply will be of importance in eliminating such shortcomings in capital construction as the violation of time periods for introducing production capacities, the dispersal of means and material resources among many construction projects and the unjustified growth in the amounts of unfinished work and stockpiles of materials and equipment.

The drawing up of plans for capital investments with a planned growth in the amount of product that is produced and services that are rendered and the immediate allocation of material resources and equipment for the reconstruction and technical re-equipping of existing enterprises substantially change the status of supplying material resources for construction. Orders for the delivery of basic technological and power equipment will be issued to the manufacturing ministries for the entire period of the construction, and the orders, which are issued by the USSR State Committee for Material-Technical Supply, remain in effect until the suppliers have fully met them. This experience has been gained in supplying equipment to the USSR Ministry of the Chemical Industry, the USSR Ministry of the Pulp and Paper Industry, the USSR Ministry of Petroleum Refining and Petrochemical Industry, the USSR Ministry of Ferrous Metallurgy and the Main Administration of the Microbiological Industry. At the same time this experience has shown the necessity to refine the procedure for obtaining equipment that was under delivered in a preceding period.

The expansion of deliveries of complete sets of technological lines, installations, means of automation and mechanization, management and control will lead to an improvement of the situation in construction. The USSR State Committee for Material-Technical Supply, the USSR Gosplan and the USSR State Committee on Prices are preparing a statute on the delivery of complete sets of technological lines, technological equipment, installations, and the means for mechanization, management and control. It is planned to complete in 1981 the switchover of construction projects, which are included in the state plan for capital construction, to a system of comprehensive supply of materials through the territorial organs of material-technical supply of the USSR State Committee for Material-Technical Supply according to the orders of the construction-installation organizations in accordance with their need, which is determined by the plans and estimates. Such a system has been used to organize the supply of 27 construction organizations having an annual volume of work amounting to 5.3 billion rubles.

The rejection of the construction "stress on production" /val/, by which the more means that are "assimilated", including unjustified costly materials and structures, the better the work of the builders is evaluated, will make it possible to more sparingly expend material resources in construction. A procedure has also been established by which a lag in construction must be made up in the following year by using the material-technical resources, including the reserves of the ministries and departments, that were not used in the preceding year.

The Development of Cost Accounting Relationships

To heighten the economic motivation and responsibility of the organs of material-technical supply for the results of their work important significance is attached to the completion in 1980 of the switchover of the organs of material-technical supply of the USSR State Committee for Material-Technical Supply to cost accounting. Their interrelationships with the associations, enterprises and organizations must be based on economic contracts and joint material responsibility. The chief criterion for evaluating the work of the organs of material-technical supply and the primary indicator for awarding bonuses to workers will be the fulfillment of economic contracts and product delivery plans.

Experience shows that much here depends upon the coordination of the actions of the apparatus of the ministries, the USSR State Committee for Material-Technical Supply, its all-union main administrations for supply and sales and the territorial organs in compiling and realizing the plan for material-technical supply, and the coordination of the plans for production and deliveries. There are still frequent instances when orders are not submitted on a timely basis or are submitted in excess of the plan for production, transferring the unfulfilled portion of an assignment for production from the first quarter to later quarters and when undelivered product is excluded from the annual plan. Therefore, considering the situations that are stipulated in the decree, it is necessary to bring the system of cost accounting relationships between the all-union main administrations of supply and sales, on one hand, and the administrations of supply of the ministries and departments and the industrial associations, on the other hand, between the main administrations of supply and sales and the territorial organs of material-technical supply, between these organs and enterprises, into alinement.

In accomplishing the plans for material-technical supply, the organs of the USSR State Committee for Material-Technical Supply must tighten their control over the strict observation by the industrial enterprises and the enterprises of material-technical supply of contract obligations. In the first six months of 1979 nearly 220 million rubles in fines were paid by negligent suppliers. At the same time instances of joint "granting of amnesty" of enterprises have still not been eliminated. It has been established that the sanctions for violating contractual obligations for product deliveries, which are stipulated by law or contract, are used in a mandatory process without joint credits.

The improvement of territorial planning, the providing of a more complete accounting in plans for material resources by regions of the USSR and the more rational siting of production forces by means of the development of territorial balances of production and the distribution of the more important kinds of product are called for to rationalize goods traffic. Measures will also be devised to raise the material responsibility of transport organizations for the non-fulfillment of coordinated plans for shipments.

In addition to improving material-technical supply the decree calls for several measures aimed at motivating the conservation of material resources. Thus, when substituting traditional kinds of raw materials and materials with cheaper kinds and when retaining the quality of the product that is produced the wholesale prices for this product will be retained without change until the end of the five-year plan. The wholesale prices for new manufactured articles with a lower consumption of materials will be established taking into consideration the retention of the amount of profit received from the sale of the previously produced or substituted product.

When accumulating above-norm stocks of material valuables and uninstalled equipment, which were not purchased on money borrowed from a bank, the production associations and enterprises will pay for them out of the profit that remains at their disposal. Since the portion of profit is also intended for creating economic stimulation funds and for providing for the growth of turnover assets, the enterprises and associations will be economically motivated to constantly monitor stocks on hand and to maintain them at a level of approved norms and standards.

Measures for improving planning and for improving the economic mechanism offer workers in industry, construction and material- technical supply extensive opportunities to raise efficiency and quality.

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ACADEMICIAN MARCHUK DISCUSSES GOALS OF SCIENTIFIC DEVELOPMENT

Moscow IZVESTIYA in Russian 6 Nov 79 p 3

[Article by Academician G. Marchuk, Vice President of the USSR Academy of Sciences and chairman of the Siberian Branch of the USSR Academy of Science: "Scientific Horizons"]

[Text] An objective trend in communist organizational development is the increasing role being played by science. Further intensification of our economic development can be carried out effectively only if extensive use is made of scientific achievements and their revolutionary effect on the tempo of scientific-technical progress and only if a high degree of responsibility is displayed by all those working in the field of science.

The Siberian Branch of the USSR Academy of Sciences, almost from the very first years of its existence, has been working on problems associated with studying and developing the natural resources of Siberia. At the present time, there are 50 scientific-research institutes of the branch carrying out work on the territory of Siberia, from the Urals to the border with the far eastern region. These facilities number some 70 academicians and corresponding members of the USSR Academy of Science, approximately 400 doctors and more than 3,000 candidates of science. The overall number of workers attached to scientific subunits of the Siberian Branch of the USSR Academy of Sciences is in excess of 40,000 individuals. It is noted that 22 years ago, prior to the creation of the branch, there was only 1 corresponding member of the USSR Academy of Sciences, 40 doctors and 300 candidates of science throughout all of Siberia.

More than 2 years ago the party's Central Committee examined the work of the Siberian Branch of the USSR Academy of Sciences in connection with the development of fundamental and applied scientific studies, improving the effectiveness of such studies, the introduction of scientific achievements into the national economy and personnel training. According to an evaluation furnished in a decree handed down by the CPSU Central Committee, the Siberian Branch with its institutes, affiliates and experimental-production subunits has become a strong scientific center.

A key aspect of the work being carried out today by the branch is its long-term complex Sibir' Program. It consists of 30 programs encompassing the key problems associated with studying and using the natural resources of the eastern region and developing large national economic complexes. All of the branch's institutes and approximately 200 institutes of other departments participate in the work of the Sibir' Program.

The principal national economic problem for Siberia is that of achieving strong growth in the fuel-energy branches. At the present time, two out of every three tons of petroleum obtained throughout the country as a whole are obtained from Siberia. One half of the country's natural gas is obtained here. The plans call for a rapid expansion of the petroleum-chemistry industry in Siberia.

One of the largest national economic programs of Siberia involves the coal industry. During this current five-year period, work commenced with regard to developing the Kansko-Achinskiy lignite basin, the largest in the world. In the future, this basin will become the main fuel-energy base of Siberia. The plans call for a unique (in terms of productivity) open-pit coal mining enterprise to be created here. It will be erected as part of a block that will include thermal electric power stations of unprecedented individual capability. New importance will be attached to the Kuznetsk Basin with its high energy coal.

The Angaro-Yeniseysk national economic complex is developing at a rapid tempo. Its foundation -- the water power resources of the Angara and Yenisey rivers and also the supplies of non-ferrous metals and wood. In the future, this entire region, which includes Krasnoyarskiy Kray, Irkutskaya Oblast and the Tuva ASSR, will take on the appearance of an entire constellation of power-industrial complexes.

The Siberian Branch has performed a great amount of work in connection with the economic development of the zone of the Baykal-Amur Trunkline. Several variants for such development were examined, with the long-term interests associated with the country's development and strengthening the economic potential of the eastern regions being taken into account.

The special purpose program entitled "Forests of Siberia" will serve as the foundation for well balanced expenditures of the forest resources and for protecting them.

The Siberian Branch of the USSR Academy of Sciences, jointly with the Siberian Branch of VASKhNIL [All-Union Academy of Agricultural Sciences imeni V.I. Lenin] and the RSFSR Ministry of Agriculture, has analyzed the status of agriculture in the regions of Siberia and has prepared proposals for its complex development, including social problems in the rural areas, in the interest of strengthening the agricultural base and ensuring that the population is supplied more completely with vegetables and livestock husbandry products.

We are also attaching great importance to the development of specific proposals for protecting the environment and achieving proper use of all natural resources. From this standpoint, the northern regions and the permafrost zone, where nature experiences great difficulty in healing its wounds, require special attention. The carrying out of scientifically sound recommendations aimed at protecting Lake Baykal and the area which it drains will be continued.

The achievements of Siberian scientists in theoretical and applied mathematics have laid the foundation for solving important tasks in such fields as hydrodynamics, geophysics and physics of the atmosphere and the ocean. A new trend at the junction of sciences -- mathematical chemistry -- is developing in an active manner at the Siberian Branch of the USSR Academy of Sciences.

Studies in the field of theoretical and experimental physics, carried out in the branch, have led to the creation of unique units for studying the structure of a nucleus -- accelerators on counter beams. It is interesting to note that these fundamental works subsequently became of great practical value. The industrial accelerators made it possible to create new and progressive technologies in the various branches of industry. The use of accelerators in agriculture is commencing at the present time.

The Sigma automatic control system, which is based upon use of a third generator electronic computer, was created in the Siberian Branch of the USSR Academy of Sciences with the participation of many branch NII's [scientific research institutes] and enterprises. A distinctive feature of this system is its ability to adjust to the peculiarities of an enterprise and its control structure. During the next few years, various ASU [automatic control system] plans will be carried out, aimed at achieving optimum control at all levels of production.

Scientists at the Institute of Hydrodynamics of the Siberian Branch of the USSR Academy of Sciences are employing explosive energy for creating new structural materials possessing high strength, resistance against corrosion and heat and raised plasticity when subjected to negative temperatures. The explosive methods make it possible to realize substantial economies in the use of rare materials and materials which are in very short supply and they also lower expenditures of manual labor. Specialized sectors for the use of explosive welding have been created at many plants throughout the country. This equipment made it possible, for the first time in international practice, to carry out explosive work directly in the departments of a plant.

Work concerned with the creation and use of plasmotrons is developing in an active manner within the branch. The use in industry of low temperature plasmas possessing such properties as high temperatures, large concentrations of energy in small volumes and the possibility of heating any gas mediums (mixtures) is raising the possibility of creating entirely new types of equipment and production technologies. Our scientists have developed and turned over to the production workers methods for the geomechanical validation and optimization of new technological plans for the mining of coal and ore. The supplying of the mining industry with new and highly productive drilling and vibration-loading equipment made it possible to introduce a new technology for the development of strong ore deposits. For example, its introduction into operations at the Tashtagol Mine of the Kuznetsk Metallurgical Combine increased labor productivity by a factor of 2.5.

The Siberian Branch of the USSR Academy of Sciences, jointly with the USSR Ministry of the Chemical Industry, proposed new industrial catalysts which increased the production of sulphuric acid and formalin.

As a result of work performed by our biologists, highly productive agricultural crop varieties and hybrids possessing good qualities and marked by high productivities have been created. The first Soviet radiation variety of spring wheat "Novosibirskaya-67, regionalized in western Siberia on an area of approximately 1 million hectares, has become very well known. It was developed jointly with plant breeders of the Siberian Branch of VASKhNIL.

The prospects are good for the practical use of a study on theoretical and experimental mineralogy. A study of the crystallization conditions for fusions which take place at very great depths in the earth, under high temperatures and pressures, led in particular to the synthesis and development, under artificial conditions, of more than 100 varieties of minerals for the national economy.

At the present time, with our country entering upon a new stage in perfecting socialist planning, special importance is being attached to raising the efficiency of the national economy of Siberia based upon the complex use of its resources and optimum control over its economic and social development. The scientists of the Siberian Branch of the USSR Academy of Sciences are participating enthusiastically in this work. They are confident that it will usher in a new stage in the development of our socialist homeland.

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COAL DEVELOPMENT IN YAKUTIYA DESCRIBED

Moscow TRUD in Russian 7 Sep 79 p 2

[Article by M. Poboronchuk (TRUD correspondent at the site of the Baykal-Amur Mainline Railroad), Neryungri--Tynda--Nakhodka: "Coal in Neryungri"]

> [Text] A New Complex in Yakutiya, Update on Progress of Construction of BAM, Kilometer After Kilometer
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> Those who have had the opportunity to see the Neryungri mine in Yakutiya call it the field of miraculous coal. There are entire black cliffs of coal here, which sparkle in the sun. Coal is the "firstborn" of the project of developing the area of the BAM [Baykal-Amur Mainline Railroad]. Construction of the BAM is of enormous importance to the solution of a broad set of problems of economic and social development of the eastern parts of our country. In particular, in accordance with the decisions of the 25th CPSU Congress, the South Yakutiya Territorial Production Complex is being formed in Yakutskaya ASSR. Construction of the Neryungri coal mine, concentration factory and production base of the building industry has begun. At the same time, the young city of Neryungri is growing.
>
> Photo caption [photo not reproduced]: Stripping work at the Neryungri mine. Photo by I. Il'yenko (TASS).

In 1983, fulfillment of a major national program, i.e., regular delivery of the coking coal from the South Yakutiya coal basin should begin in the Far East. A huge coal conveyer will extend over almost 2500 kilometers in Yakutskaya SSR, Amurskaya Oblast, Khabarovskiy and Primorskiy krays, from the Ugol'naya Station on the BAM to the port of Vostochnyy on the Pacific Ocean. A TRUD correspondent traveled over this entire route, and he met with people who work there. This issue of the progress report on "BAM, Kilometer After Kilometer" is devoted to a report on preparations for fulfilling this task important to the national economy, as well as the plans and concerns of the builders of the South Yakutiya coal complex and BAM-Tynda-Berkakit-Ugol'naya line, as well as the builders of the port, Vostochnyy.

1. Mineral Resources

The discovered resources of the South Yakutiya coal basin amount to 450 million tons of coking coal.

The projected annual yield of the Neryungri coal mine is 13 million tons of fuel.

Annual output of the concentration factory is 9 million tons of concentrate.

The Neryungri Hydroelectric Power Plant, the first one in the South Yakutiya territorial production complex, has a capacity of 1.2 million kilowatts.

The projected population of the city of Neryungri will be 100,000.

On 23 February 1976, the first line was written in the history of the South Yakutiya territoral production complex; that day, excavator operator Valentin Vishny removed the first shovel of ground at the site of the Neryungri coal mine. Nature endowed the fields of Yakutiya with an enormous supply of fuel, gas and coal. Its southern regions are particularly rich in coal. The work that V. Vishnu had begun near the rapidly flowing and cold Verkhnyaya Neryungra River heralded not only the start of development of this republic's subterranean "stockrooms," but the start of economic development of the entire zone of the BAM.

V. Bondar', deputy director of the board of construction of the South Yakutiya coal complex, repeats my question: "What has already been accomplished? The buildings of the concentration factory have been erected on the slope of the hill, and it will be put on stream in 1982. Speedy construction is under way of a loading installation that will load 4000 tons of coal into train cars per hour. It will begin to operate at the end of this year. Construction of 14 spur [siding] tracks is being completed at the Ugol'naya Station."

Yes, the South Yakutiya TPK [territorial production complex] is still picking up momentum, but already is providing the nation with high-calorie fuel. Coal shipments began in October of last year over a temporary railroad track in parts of Yakutiya and the Far East. By the end of this year, Neryungri will supply the nation with more than 1.5 million tons of high-energy coal.

G. Podkovyrov, chief engineer on the board of construction of the coal complex tells me: "All our attention is presently fixed on the Neryungri mine, where a problem has arisen: The coal field is covered by a layer of permafrost tens of meters in thickness, and it must be removed expeditiously. The scope of stripping work is increasing drastically from year to year.

While 15 million cubic meters of ground had to be moved in 1979, the figure will be 90 million in 1982. This means that the scope of the work will increase by six times in 4 years. Of course, if we do not remove the ground from the coal in time, we will be unable to implement regular loading of fuel at the proper time. Unfortunately, such a tendency exists: last year, the plan for stripping work was fulfilled with a shortfall of 2 million cubic meters of rock...."

Why did this difficult situation arise? The chief cause is the poor work of excavators and dump trucks. The USSR Ministry of Heavy and Transport Machine Building must deliver, by the end of this year, the first 20-cubic meter domestic excavator manufactured by the Uralmash Plant and five more in 1980 in order to complete the planned work. The Belorussian motor vehicle manufacturers would render us priceless assistance if, as they promised, they deliver to us five 180-ton BelAZ-7221 dump trucks next year."

Among other problems of the complex that is under construction, we cannot fail to mention the acute housing shortage. For example, last year, instead of the planned 115,000 square meters of housing area almost half, 63,000, was built in Neryungri. The USSR Ministry of the Coal Industry was unable to set up delivery of reinforced concrete items from industrially developed parts of our country over a period of several years, and it undertook with great delay the formation of a construction industry base in southern Yakutiya. Now this must be done at a very high speed.

2. Transportation

> There are 425 km of steel track between Ugol'naya Station and the Transiberian Railroad.
>
> There are 311 large, medium and small bridges.
>
> There is a 1240-meter railroad tunnel, Nagornyy, which was dug out, for the first time in worldwide practice, through permafrost.
>
> There are 11 stations and worker settlements, and all this represents the Ugol'naya-Berkakit-Tynda part of the BAM.

This track was laid primarily to ship out fuel from South Yakutiya. The section of the taiga mainline between the BAM station and Tynda has been in operation for almost 2 years according to permanent plan, while the Tynda-Berkakit-Ugol'naya road will be put on permanent stream in November.

We drove along the railroad on steep, curved, mountain roads. In the village Mogot we met Vladimir Novik, a well-known builder and leader of a complex mechanized brigade. This brigade leader, who is of sturdy build, energetic and knowledgeable, is the first and, thus far, the only builder on the BAM project upon whom the high rank of Hero of Socialist Labor was bestowed for erecting the railroad.

"I often have to travel over the entire route, from Tynda to Ugol'naya," V. Novik tells us. "Over every kilometer intensive work is presently in progress: grading and straightening of the track, the roadbed and bridges are made to conform with a high quality, erection of major residential settlements and industrial projects is essentially being completed. Our brigade will finish construction of a boiler room, diesel engine shops, vegetable warehouse and the sanitation-utilities complex before the target date."

Yes, there is no question but that the northern branch of the BAM will be put on stream on schedule. At the same time, the railroad workers are concerned about quite a few problems.

"The route of the BAM passes through difficult mountain regions, where only high-power diesel engines can function," says V. Orlov, chief engineer on the board of directors of BAM construction. "Much has been written about locomotives for the BAM, and 2-3 years ago, the head of the Voroshilovgrad Production Association for Engine Building spoke about them with satisfaction. But what actually happened? In accordance with the plan, the 21E116 freight diesel engine was to be operated on the Bam-Tynda-Ugol'naya line. However, during tests in Tyumenskaya Oblast, some serious design flaws were found in it, and it is not being manufactured at the present time. As an alternate variant, it was planned to develop the series ChTE130 engine. But things did not work out at the Voroshilovgrad to produce it. So here we are, it is time to ship coal and the required engine is not available."

... The Tynda River separates the capital of BAM into two distinct parts: on the left bank are the residential blocks and on the right the industrial zone. It is expressly there that it is planned to erect a locomotive roundhouse, which will be the largest, not only on the BAM, but even in the entire Far East. The locomotives will travel an enormous distance between the Bam Station and Ugol'naya and back, and after each run they have to be inspected and any necessary repairs must be made. Shipment of coal has already begun, and it will increase drastically from year to year, yet there is still no place to service [repair] the diesel engines.

The first phase of the depot, which includes the shop for technical inspection and locomotive equipment, mechanized car-preparing center, roundhouse and other elements, should go on stream this year, according to the plan. However, the TsentroBAMstroy [Central BAM Construction] Trust is behind in the work: only the posts have been put up for construction of the mechanized center. If the depot continues to be erected at the same pace in the future, the target date for its completion, 1983, will not be met.

3. The Port

> The port of Vostochnyy will be able to handle 40 million tons of freight annually after all of its elements are put on stream.

A total of 66 berths will be built there.

A unique coal loading and unloading complex with a capability of 6.240 thousand tons of fuel annually has been put on stream.

And now we are completing our journey from Ugol'naya Station on the BAM to the shores of the Pacific Ocean. The Bay of Vrangel', surrounded by a chain of tree-covered hills, is situated 18 miles from Nakhodka. There Vostochnyy is under construction, and it will be the largest port in the USSR. Together with the port director, we walked over the territory of the coal complex. Two years ago I had occasion to visit there. At that time the buildings barely rose above the craters, in which they were set, and the coal pier was making its first steps into the sea. Now the construction work is completed and, according to the plan, 24 months have been given to finish installation of equipment and putting the complex as a whole on stream.

Thick piling carries the coal pier 380 meters into the sea. Two ships, with 50,000 tons displacement each, will be able to be moored there at one time. Four railroad cars will be turned upside down simultaneously by means of special devices. The coal will pour from them right down to 800-meter conveyers [chutes?] that will deliver the fuel to the ship hold. The entire loading process is completely automated, and it will be controlled by only a few operators.

V. Kobzar' tells us: "As you see, we have completed the first phase of the coal complex. The plan calls for starting construction of the second phase, with a capacity of 4 million tons, in 1981. This means that there is a regrettable hiatus of almost 2 years. The many thousands of construction workers who had labored at an intensive pace for the last few years suddenly found themselves without a job. True, we transferred them to other construction projects, but, of course, this is no solution. We are losing a well-organized group of workers and are taking on another job without properly finishing the first one. For this reason, we are asking the USSR Ministry of the Maritime Fleet to explore the possibility of starting construction of the second phase of the coal complex before the date specified by this ministry...."

We visited Beregovyy, the settlement where the port construction workers live. There, six 5-story buildings, a polyclinic that can handle 750 visitors per day, a 50-seat public dining room and a shop have already been constructed. But we were amazed by the scattered placement of these buildings and the disorganized manner in which the settlement is being built.

There is more. Quite a lot of the equipment for Vostochnyy is manufactured by plants that are located in European USSR. Quite often the plants ship equipment to the construction workers, which was scheduled for the fourth quarter, on 31 December. This means that the equipment that should have have been in operation the preceding year is received only sometimes in February of the following year. This disrupts fulfillment of important

State assignments. For this reason, it would be more logical to send equipment to the Far East in the second or third quarter, rather than the fourth.

.... In spite of the problems that exist for the time being, we hope that all projects that are needed to transport coal from Neryungri to the port of Vostochnyy will be under the special control of the ministries mentioned above, that they will eliminate the weak points and that the huge coal conveyer from Yakutiya to the Pacific Ocean will start up on schedule.
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